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W. A. SCOTT
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The Business of Growing Apples

By Hon. H. F. Byrd

THE BUSINESS of growing apples may be divided into three general parts: (1) growing; (2) harvesting; and (3) marketing. Each is a separate and distinct business in itself. Of these three, growing is of overwhelming importance. The basis of any success in apple growing must be in producing crops of reasonable of any success in appie growing must be in producing crops of reasonable size and high quality. Skillful pack-ing and marketing, as important and necessary as they are, will never in themselves make for success unless the growing end of the business is competently handled.

Probably the most important, and certainly the most difficult and intercertainly the most difficult and inter-esting part of growing apples, is the feeding of the trees. It is the most important because future crops depend entirely upon the plant food provided the tree, and no matter how well a crop is cared for, unless it is of suffi-cient size to produce a margin of profcient size to produce a margin of profit per acre the grower cannot hope for success. It is the most difficult besuccess. It is the most dimedit because each orchard, and most frequently different sections of the same orchard, present individual problems. Varieties greatly vary in their demand for plant food, and there can therefore be no general treatment that will be effective but the grower must rebe effective, but the grower must rely on his own experience and knowledge of his particular orchard.

Firm Believer in Vigorous Trees

In general I am a firm believer in a very vigorous tree. A vigorous tree will produce larger and more cer-tain crops; it will withstand frost and adverse weather conditions far better than a weak one; and it will set fruit from a greater percentage of its blossoms under unfavorable conditions and carry the crop through extremely dry weather better than a weaker one, and so is far more likely to pro-

one, and so is far more likely to produce annual crops.

As to how vigorous a tree should be, this must be determined by each grower for his particular orchard. In general, I do not think a tree of from 15 to 20 years which grows 12 inches in a good season is too vigorous.

I stimulate the growth of my orchards by means of cultivation, leguminous cover crops, and nitrate of soda. The cultivation is done as early as possible in the spring, and the

as possible in the spring, and the cover crops are sown as soon as pos-sible. This method I find to be the cheapest, as it eliminates much expencheapest, as it eliminates much expensive cultivation and has in the past proven satisfactory. On bearing orchards, where the land is already in good condition, I use a mixture of clover and alfalfa. On land that I desire to build up quickly, I use cowness and sayleary. I do not believe desire to build up quickly, I use cow-peas and soybeans. I do not believe that any of the cover crop should be taken off a bearing orchard, but should be mowed and left on the ground. I use nitrate of soda on the trees that are not cultivated. I have found it dangerous to cultivate and found it dangerous to cultivate and nitrate the same year. From two to five pounds of nitrate per tree is sufficient for our conditions where the soil

Nitrate will not take the place of cover crops; it will not give humus and permanent soil improvement that are necessary to bring the tree to its greatest efficiency of production; but is useful as a supplement to cultiva-

Governor of Virginia tion and cover crops and should be

so used. If an orchard is made to grow vigor-ously, it must be pruned rather heavily. This, in turn, stimulates the tree, and where very heavy pruning is practiced care must be taken not to fertilize or cultivate too much the following season

I firmly believe in a rather thin tree. An apple cannot reach perfection unless it has sufficient sunlight. In my opinion there is no possibility of growing a large percentage of high quality fruit on an orchard that is very thick. I therefore consider a sufficient and thorough pruning one of the most important orchard requirements. ments.

Pollination

Pollination does not receive the attention it deserves from many growers. Under the most favorable the average orchard will conditions. set a sufficient percentage of its blos-soms to produce a crop, but conditions

soms to produce a crop, but conditions are rarely favorable. In a business so hazardous as apple growing, it is vitally important to leave as little as possible to chance. Attention should therefore be given to pollination.

First be assured that the varieties planted in the orchard will pollinize each other. It has recently been determined that varieties heretofore considered good pollinizers are worthless for that purpose. Once given the proper varieties, pollination is largely accomplished by bees. If bees are not present in large numbers during ny accomplished by bees. It bees are not present in large numbers during blossom, provision should be made to keep them in the orchard. I have had difficulty in preventing the bees from being killed by spray, particularly the spray that falls on cover crops in blossom. I have in recent years adopted som. I have in recent years adopted the practice of moving the bees into

the orchard about a week before the blossom and moving them out again before the calyx spray. In some cases I have rented a number of hives of bees for the blooming period. I have observed that even the so-called self-fertile varieties, such as the York, will set a much heavier crop if they are in proximity to good pollinizers and there are bees present.

Spraying

Spraying probably receives more serious consideration than any other one orchard practice. With the in-formation now available in most of the important apple sections, it would not would not be profitable for me to discuss the different insects and fungous diseases that attack the apple, or the numerthat attack the apple, or the numerous spray materials that are used. If a grower has access to an efficient experiment station, he had far better follow their advice about his particular problems than that of another grower who may have entirely different problems in a different section. I will only say that I largely rely on lime-sulphur as a scalecide and fungicide, on nicotine sulphate as a contact insecticide, and on lead arsenate tact insecticide, and on lead arsenate as a stomach poison. These materials, on the whole, meet our conditions in the valley counties of north-ern Virginia. I consider spraying as I do insurance and never risk omit-

I do insurance and never risk omitting an important spray.

The method of applying the spray is as important as the material and time of application. I have found a pressure of 325 to be the most efficient. I have a man on a tower equipped with a 10-foot rod with three angle nozzles, and a man on the ground with a shorter rod and two straight nozzles. I use the Friend calyx nozles, which have five holes under the zles, which have five holes under the

eddy chamber. This nozzle gives a more forceful spray with the same size hole in the disk than an ordinary Friend with two holes in the eddy rriend with two holes in the eddy chamber which I use when a broader spray is desired. The size of the hole in the disk is of great importance. The hole should be small enough to break the spray thoroughly and yet large enough to permit the spray to be forced through the trees.

In spraying the larger trees, the sprayer stops twice on each side, maken the sprayer stops the sprayer stop sprayer stops twice on each side, maing four stops to each tree. This with the long rods and high pressure enables the operators to thoroughly cover the tree. I have entirely abandoned the spray gun as being more wasteful and less efficient than the rod.

Thinning Is Profitable

I practice thinning and find it profitable. It is an important factor in growing high quality apples and reduces to a considerable extent the percentage of small sizes and culls.

The grower must be alive to the fact that no one or two orchard operations will produce and bring to maturity a satisfactory crop, but he must have the energy and resources to carry out all of the necessary operations in a well balanced program if he expects to succeed.

Harvesting

Harvesting problems are controlled largely by individual orchard and labor conditions. I have my picking done by the bushel, which is far more satisfactory under my conditions than satisfactory under my conditions than by day labor. The packing, as far as practicable, should be done in central packing houses. Apples packed in the same plant will be more uniform than those packed in several places. I have for some years used sizing machines, and believe that apples should be packed in several sizes. With us, the smaller sizes usually go for export and the larger are sold for domestic consumption.

domestic consumption.

The facing of the barrel is extremely important, but the face should fairly important, but the face should fair-ly represent the contents of the bar-rel in size and quality. The barrel should be thoroughly racked down while it is being run. This should be done on concrete, and care must be taken to properly finish off the press and so as to make the package thortaken to properly finish off the press end so as to make the package thoroughly solid and tight without undue pressing. Ring-tailing is a good practice for apples that go on the market from the orchard. I have discontinued ring-tailing apples for storage. On the softer and more valuable varieties, such as Staymans, that are stored, I have adopted the practice of packing just tight enough to carry to storage. This eliminates bruising on storage. This eliminates bruising on the press end but necessitates cush-ioning, which adds to the cost, but it is, in my opinion, more than worth the added expense.

Marketing

The ability of the grower to mar-The ability of the grower to market his crop at an advance over the general market is dependent on the quality of his apples and on the reputation he has for quality and an honest pack. A grower's reputation is his most valuable asset in any year, but in the years of over-production it

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Variety Selection for the Roadside Market

automobile traffic, and with it the automone traine, and with it the coming of improved roads, has opened up an entirely new outlet for farm products through roadside markets. Not all of us can live along the "pavement" to be sure, but our systems of improved roads are becoming more and more extensive and an increasing number of farms are height height. and more extensive and an increasing number of farms are being brought into direct contact with a new customer in the person of the city or town motorist.

There are several advantages in selling at the roadside. It eliminates the middleman, for one thing. Then it saves bookkeeping, as all sales can be made on a cash basis. It also stimulates fair dealing, for the producer and consumer arrive at an understanding as to prices which is more derstanding as to prices which is more satisfactory than is the case when one depends on the good will of some unknown commission merchant. The best cultural methods are encouraged, too, for only the finest products will bring the best prices in such open competition as exists in these mar-

The consumer comes in for a share of the advantages also. He gets his products in fresher condition than at the grocery store. He can usually ne grocery elect his the grocery store. He can usually select his needs from a larger variety than in the city markets. In most cases he can buy at lower prices. These factors combine to make him eat more fruits and vegetables, which is a good thing both for his health and for the pocketbook of the grower.

To make the most of a roadside market, the producer must cater to it. Odds and ends of crops grown for the general market will not bring in the roadside best returns from the roadside stand, particularly if the neighbors under-take to meet demands for seasonable products of the best quality. Struit to a commission market Selling carload lots, where large quantities of a single standard sort are particularly desirable, is quite a different proposi-tion from selling direct to the con-

sumer in small quantities.

The expert advice which fruit growers have been receiving to set but a few varieties is all very well if the crop is to be disposed of only on the general market. For roadside marketing, however, this advice must be changed with respect to the kinds

be changed with respect to the kinds and varieties grown.
Several kinds of fruit and many varieties of each kind should be on hand to supply the roadside stand, for there should be fruits of several kinds throughout the season, and this means a succession of varieties of the different fruits. Also, tastes of consumers differ widely: therefore, there different fruits. Also, tastes of con-sumers differ widely; therefore, there should be fruits of different colors, and textures, suitable for

By J. D. Luckett

New York State Agricultural Experiment Station

different uses, such as eating out of hand and for culinary purposes. Without question, variety is the "spice of life" for the roadside market.

Some Recommended Tree Fruits

As a guide to those who might wish to plan future plantings with an eye to getting the best possible combinations of varieties for supplying the tions of varieties for supplying the roadside stand, the writer asked Dr. U. P. Hedrick, Hörticulturist at the Geneva (N. Y.) Experiment Station and a recognized authority on fruit growing, to name what he regarded as the most promising sorts to provide a constant supply to meet the demands of a discriminating public. His lists are given below, and apply general to the eastern United

Of course, one would not necessarily care to set out all of these sorts, even if space permitted. But the lists will serve as a basis for selection, not only new plantings, but as a guide what is best to save out of plantings which are to be drawn on to supply the stand. In each case the varieties are listed in the order of varieties are listed in the order of their season, or the order in which they ripen. For example, the list of apples is so arranged that from the time Yellow Transparent ripens the stand would be supplied with apples of good quality and color clear through the season, including winter apples that could be picked and sold at the stand in small containers that the city consumer could store in the the city consumer could store in the limited space that would probably be available in his cellar. The same is true of all the other fruits listed, although of course in most cases there are no winter varieties.

The first of the tree fruits to come The first of the tree fruits to come into bearing in the spring are the sweet cherries, and nothing will be quite so eagerly seized upon as an attractive lot of sweet cherries after the dearth of fresh stuff during the winter. Sweet cherries are recommended as follows:

Governor Wood Black Tartarian Black Tan Napoleon

Schmidt Yellow Spanish Lambert Windsor

Following the sweet cherries, and almost as acceptable to a city crowd, Four varieties are the sour cherries. of these are suggested, as follows:

Early Richmond Montgomery

arly Richmond Chase English Morello
Plums are also fairly early arrivals and varieties can be set which will extend the season for this fruit over a considerable period. Those recom-

mended by Dr. Hedrick are as fol-

Abundance Burbank Bradshaw Bradshaw Reine Claude Italian Prune Grand Duke Imperial Epineuse French Damson

Peaches are an ever popular fruit, and Dr. Hedrick names 11 varieties of this fruit which appeal to the consumer and which lend themselves to varieties of requirements of the roadside stand. These are:

Greensboro Carman June Elberta Belle of Georgia Crawford Early

Rochester J. H. Hale Elberta Wilma Crosby Sm

Novelties will sell on the roadside market just as fast and as well as they do in a city department store, and novelties in fruit are especially alluring to city tastes. For this reason everyone who contemplates setting up a roadside stand or who is already, established should by all ready established should, by all means, include a few nectarines in his fruit planting. Nectarines, as most everyone knows, are smooth-skinned peaches, and because of the lack of "fuzz" appeal tremendously to one for eating out of hand. They most everyone knows. can be grown wherever peaches thrive and are easily kept free of insect pests by well-known routine sprays. Nectarines are good to look upon and are just as good to eat, and the novel-ty of the fruit is bound to prove a strong selling point. Two good varieties are suggested by Dr. Hedrick, namely. Hunter and Victoria.

Practically everybody likes a good apple; and because of their keeping qualities and many uses, they make a strong appeal to the housewife. Apples are especially adapted to the roadside market because of the large number of good varieties from which to make a choice, and because of this wide range in choice varieties may be selected for different purposes and for the entire season. Sixteen va-rieties are included in the list of apples.

ellow Transparent arly McIntosh uchess of Olden-burg Grimes Juliams of Gravanstein Lonathan

burg
Williams
Red Gravenstein
Wealthy
McIntosh
Cortland Jonathan Red Spy Stayman Yellow Newtown

Almost equally as attractive as apples, although not quite so versatile, are the pears. ply of pears, For an all-season sup-Dr. Hedrick suggests ply of pears, the following:

Two quinces are suggested, Orange and Champion, as offering possibilities for an appeal to the housewife as ex-cellent commodities for preserving or canning.

Then, toward the end of the growing season, come the grapes. For eating out of hand, for jellies, and for the making of grape juice, grapes are an ever popular fruit and are always in strong demand. A list of varieties that span the season for the roside stand is suggested as follows:

Portland (green)

Niagara (green) Concord (black) Sheridan (black) Catawba (red)

Some Good Small Fruits

In their season, small fruits will sell just as well if not better than tree fruits to a transient trade, particularly if the better varieties of straw-berries, raspberries, currants, etc., are offered to the public. Small fruits have the advantage, too, of requiring a relatively small space for the pro-duction of quite a respectable crop as compared with tree fruits, most which must be given considerable room for their best development. At any rate, provision should be made for a supply of the small fruits if con-ditions are at all favorable for their growth.

start off the season for the small fruits are the strawberries. Dr. Hedrick recommends the following varieties out of the hundreds that might be grown:

Howard

Gandy Sample Belt

Two everbearing strawberries, Progressive and Superb, are also added to the list.

and gooseberries are in Currants currants and gooseberries are in demand chiefly for jellies and jams, as they are not so much relished in this country as dessert fruits. There is always a ready sale for attractive displays, however, and usually the supply is not any too abundant for the demand. For currants, the fol-lowing are suggested:

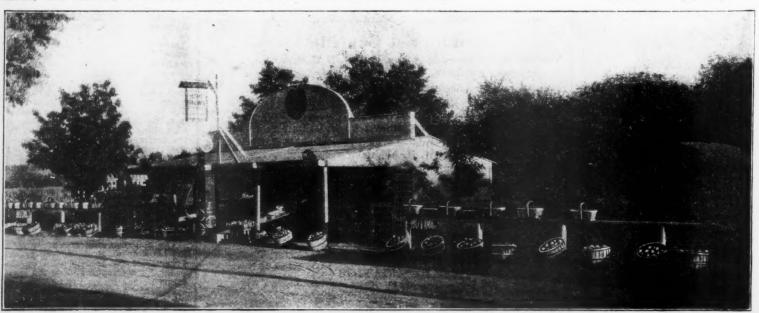
Cherry Fay White Grape Perfection Wilder Prince Albert

Five good gooseberries are:

Whitesmith

Whitesmith Industry
Lancashire Lad
Raspberries, particularly red raspberries, always find favor with city customers. Many growers, however, are finding difficulty in growing raspberries successfully because of the

(Concluded on page 30)



For the best success in roadside marketing, there should be a supply of high quality products of good variety over as long a season as possible

S You ments method worm but du tain they gr tests v which formati vines t

dropped. varieties Catawba Worden

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Bench Grafting American Grapes

By F. E. Gladwin

New York Agricultural Experiment Station

SEVERAL years ago the New York Agricultural Experiment Station conducted some experiments in an attempt to discover a method of controlling the grape root worm through grafting. The tests proved ineffective for this purpose, but during the tests it was noted that some varieties were more vigorous and productive when grafted on certain roots than on others or when tain roots than on others or when they grew on their own roots. Other tests were therefore started in 1915, which were planned to furnish in-formation on this question. The vines then planted have been under continuous study and observation ever

Varieties and Stocks

As this experiment was started before the passing of the Eighteenth

variety grafted on each of the three stocks is 35; thus 35 Concord were grafted on Gloire, 35 on St. George and 35 on Clinton. These were planted side by side in three rows along with a row of 35 vines of the variety ungrafted. The latter served as check or control rows. The soil was probably below the average in fertility, as a vineyard had occupied the land previously for many years and land previously for many years and but little manure and commercial fertilizer had been applied. Accord-ing to the survey of the United States Bureau of Soils, it would be classed as Dunkirk gravelly-loam. In the in-

air. The exclusion of it inhibits the formation of knitting or healing tissue. In view of this fact, just as little waxed string should be used for tying as will hold the joined parts in close contact. Only two or three turns of string should be given around the place where the tongue meets the outside of the cane at one extremity, and then it should be carried diagonally to the other extremity of the union and there wrapped two or three times around the joined parts. Under no circumstances should waxed cloth or grafting wax enclose the joined parts. Asphaltum and many other materials proved injurious.

Caring for the Grafts

Caring for the Grafts

Caring for the Grafts

It has been thoroughly proven for the eastern United States that in the average season the union will not put forth callous or knitting tissue when placed in sand or other material in an outside pit or frame. As the most favorable period for bench grafting the grape seems to be from early March through early April, there is too little heat supplied by the sun and too much moisture for callous formatoo much moisture for callous forma-

However, bench grafts made at this However, bench grafts made at this time may be successfully stored and calloused if placed upright in packing cases of sufficient depth so that two or three inches of sawdust or shavings saturated with water, can be placed over the bottom of the box and placed over the bottom of the box and a like thickness over the tops of the scions. Likewise a layer of sawdust is placed around the sides and ends so that the grafts are completely insulated from the outside by a layer of saturated sawdust on the bottom, top, sides and ends. When first made the cases containing the bench grafts may be stored away in a cool place until within three weeks or a month of planting time. At this period the cases should be placed where they will receive a constant mean temperature of 70 degrees Fahrenheit within ture of 70 degrees Fahrenheit within the boxes. To hold this temperature, it will be necessary to keep the mean room temperature at 78 degrees Fahrenheit or slightly above. Under these conditions, good callous pads have developed after 21 days, but if the cut edges and over the ends, the heat should be shut off. The cases may be left to cool normally in the room, but if the grafts are to be planted at once, the boxes should be removed to a cooler room and then to the outside. In any event the cooling should be gradual. It is good practice to expose the boxes to outside temperatures a few days before planting out the bench grafts. planting out the bench grafts.

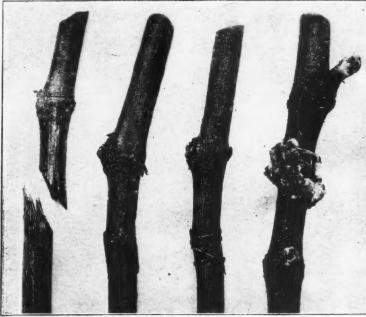
Planting

When the soil has warmed sufficiently, the grafts may be planted in the nursery row as ordinary grape cuttings with but few exceptions. Greater care must be taken that they do not dry out through exposure to direct sunlight or through warm, dry winds. sunlight or through warm, dry winds. It is a good plan to keep them covered with moistened burlap. They should be placed in the trench or furrow so that the area of union will stand but an inch or two below the surface of the soil when the trench is filled. In the soil when the trench is filled. In loose, open soils the tops of the scions may be covered lightly with soil. If the soil is heavy and likely to crust, the sawdust or shavings used in the callousing may be placed over the tops. Twice during the growing season it is necessary to dig the soil away from the unions and cut off completely all roots that may have developed on the scion. If this is not done, the stock roots will receive little plant food and will finally cease to function. In this event the purposes of grafting are thwarted. Fertile soil with good cultivation will produce the better plants. Under favorable soil better plants. Under favorable soil conditions, good growing weather and with well prepared grafts, probably 50 per cent or more will result in well-rooted plants suitable for vineyard planting. The French report 80 to 90 planting. The French per cent of successes.

Planting In the Vineyard

Planting In the Vineyard

The grafts are planted in the vineyard so that the unions stand two or three inches below the soil level when the hole or trench is filled. This facilitates access to the union, as it is necessary to dig down to it once annually for the first two years and cut off scion roots. The soil is then restored to the former level. The planting at this depth also permits of trunk renewal down to and even slightly below the soil level or as deep as the scion portion extends. After the first two seasons in the vineyard, the vines two seasons in the vineyard, the vines



How bench grafting is accomplished

From left to right, this picture shows: (1) A scion and stock properly trimmed and cut for grafting: (2) the scion and stock fitted: (3) the way waxed string is used for tying the union; and (4) the appearance of a graft after 21 days under heat.

amendment, the choice of varieties for use as scions was equally divided between wine and dessert sorts. After the passage of the amendment, two of the wine varieties were dropped. At the present time the varieties in the test are Campbell, Delaware, Concord, Niagara, Iona and Catawba. Within the past two years Worden has been added in the place of Dutchess. Each of the above varieties was grafted on three vigorous or resistant stocks, known by name as Riparia Gloire de Montpelier, Rupestris St. George du Lot, and the native, cultivated variety, Clinton, known for its great vigor and fruitnative, cultivated variety, Clinton, known for its great vigor and fruitfulness. Strange to relate, the first two stocks were developed in Europe from some of our native wild species. Since the start in Europe with the above stocks and the reconstitution of their vineyards thereon, many other stocks have been developed to the varying needs of soils and

It might be well to state at this point that while the results of the tests are quite striking, it must not be assumed that the best stocks have be assumed that the best stocks have been employed. It is clear as a result of these experiments that all varieties do not behave equally well on a common stock, but rather, they have stock preferences. Likewise, it is evident that all stocks do not do equally well on a common soil. Gloire usually does its best on a rather wet, shallow soil; St. George grows best in a dry, deep, open soil; and Clinton is intermediate in its soil requirements. Our work confirms these statements. statements

terval between the removal of the old vineyard and the planting of this grafted one, two crops of mammoth clover were plowed down.

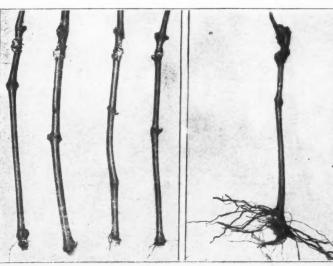
Preparation of the Grafted Plants

It was deemed best to insert two eye scions of each variety on one-year rooted stocks of each sort, and accordingly this plan was carried out. Later work has shown that the use of one eye scions on unrooted tings offers more favorable conditions for success than the former plan. Not only is the latter procedure more ecoonly is the latter procedure more economical, but the percentage of takes on unrooted cuttings is greater than on the one-year roots. Grafted cuttings can be handled more easily in the process of callousing.

The bench grafting was done in early March, the ordinary English whip and tongue method being used. This differed but slightly from the method as ordinarily employed in the

This differed but slightly from the method as ordinarily employed in the root grafting of apples. Possibly the bevels were somewhat shorter. With the bench grafting of grapes, however, the size of the stock and scion must be identical. The earlier work was done by hand cutting of the bevels and tanguage but in recent years we done by hand cutting of the bevels and tongues, but in recent years we have used a French grafting machine, especially designed for grape work, although the writer has used it successfully with apple grafting. This machine cuts the bevel and tongue on both scion and stock at one operation, and the cuts are always smooth and identical. and identical.

In the bench grafting of grapes, or, in fact, with grape grafting of any sort, care must be taken that the number of vines of each joined parts are freely exposed to the



Left.—Grafted cuttings as taken from callousing box.
a Riparia Gloire stock Right.-Concord scion grafted or

the heat can be controlled so that there will be no marked lowering of temperature within the boxes, callous will form in less time. Under extremely favorable conditions too much callous may develop, but this is quite rare with American varieties of grapes. Frequent examination should be made of the grafts, and when knitting tissue is found along

are handled just as ungrafted plants. with the possible exception that the grafted vines will require longer pruning, owing to their more vigorous

What May Be Expected from Grafting In studying the effects of grafting in the New York experiment, the (Continued on page 36)

American Fruit Grower Magazine

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MATTHEWS, Chairman, Department of Horticul-re, North Carolina State College, Raleigh, N. C. O'KANE, Department of Entomology, University ew Hampshire, Durham, N. H.

of New Hampshire, Durham, N. H.
P. SANDSTEN, Horticulturist, Colorado Agricultural Experiment Station, Fort Collins, Colo.
C. SEARS, Department of Pomology, Massachusetts Agricultural College, Amherst, Mass.
P. TUFTS, Assistant Professor in Pomology, University of California, Davis, Calif. esty of California, Davis, Calif. E. WINBERG, President, Gulf Coast Horticultural siety, Silverhill, Ala.

A Result of Get-Rich-Quick Stories

CINCE we expressed our views in the January issue regarding the circulation of get-rich-quick stories by some fruit grow-John N. Dyer of Vincennes, Ind., has called our attention to a concrete example of how such stories can affect the interests of fruit growers.

The Indiana State Board of Tax Commissioners has been making a desperate attempt for the last four years to tax erchards in addition to the lands on which they are located. Their expressed views on valuation have ranged from \$1500 per acre for bearing orchards down to smaller amounts for newly planted orchards.

Naturally the growers resisted the efforts of the board. At the last session of the legislature a bill was passed which provided for the reassessment of all farm lands in 1925. The growers secured an amendment to this act which precluded the valuation of orchard lands at higher values than adjoining farm

The next move of the tax board consisted in getting the attorney-general to rule that orchard trees were personal property and assessable as such. The board then placed a valuation of \$4 per tree on fruit trees of all kinds, regardless of age.

As might be expected, the fruit growers rose in protest immediately. A state-wide meeting was held at Vincennes, Ind. Resolutions were passed, committees were appointed, and conferences were held with legal authorities. The tax board, finding that they had placed themselves in a delicate position as regards the principles of taxation, showed a tendency to mediate. They consented, and the growers agreed, to the levy of an assessment on orchards at a valuation 50 per cent higher than that of adjoining farm lands for apple orchards 10 years of age and older and for peach orchards six years of age and older, with no extra assessments for younger orchards. The matter is thus settled for four years, since the state law limits revaluation of lands for this period. The growers are planning to have the legislature limit the value which can be placed on orchards.

Such tendencies in one state may spread to other states. The city politicians are perfect-

ly content to load taxation onto fruit growers and farmers if they can do so. Stories of large profits in fruit growing give the politicians the viewpoint that fruit growing is a profitable enterprise, and naturally the tax boards conclude that fruit growers can well afford to pay higher taxes as a result. Such stories do not give all the facts in connection with the growing of an orchard, as we pointed out in our January editorial. We want to urge our readers again to stop telling such stories in the interests of their own welfare.

Support Package Standardization

S WE have often pointed out before, fruit growers and farmers must begin at the very bottom in solving their marketing problems. Production as well as marketing must receive proper attention, and the various operations must be properly co-ordinated.

Standardization is one of our big problems. The standardization system under which we have been operating developed in the early days when commerce was largely localized. It is only natural that under such conditions there should be great variations in grading standards and in the kinds of packages used. Good transportation and refrigeration have made commerce a national proposition. must now look at our standardization problems in the same light.

The United States Department of Agriculture has reached the conclusion that certain fundamental principles must be applied on a national basis in order that we may achieve the best results for all concerned. The grading rules of the department are being generally adopted and are bringing about better system, greater confidence and improved results all around. The United States Barrel Act introduced order into the barrel situation and the United States Container Act has done the same insofar as climax baskets, bushel baskets and till baskets are concerned. The net weight amendment to the Food and Drugs Act requires a statement of the quantity of products in terms of weight measure or numerical count, and this has proved a decided

The work of package standardization is not completed, however. We still need a law standardizing hampers, round stave baskets and splint or market baskets. Such a bill, developed by the United States Department of Agriculture, is now before Congress. should receive the support of every fruit grower and every horticultural organization in the country. We also need laws covering the standardization of boxes and crates for a considerable number of products. The department is investigating this subject and it plans to recommend legislation when sufficient information is at hand.

Read Governor Byrd's Article

THE ARTICLE by Gov. H. F. Byrd of Virginia on page three of this issue should be read by every fruit grower in the country. Governor Byrd, besides being a successful publisher and politician, is a highly successful fruit grower. He lives in one of the most intensive fruit sections of America. He has been growing fruit since 1906. He owns or is interested in orchards which total 60,000 trees. In 1923 he produced 225,000 bushels of apples, or about one-twenty-fifth of the crop of Virginia. Some of his orchards were purchased at war prices, but notwithstanding this, he has been able, through wise management, to make them pay about 10 per cent on the investment. This accomplishment, attained during a period when other growers, particularly in Virginia, have been having a

difficult time to remain in business, is particularly noteworthy. Governor Byrd's article is a thoroughly practical one and we hope every grower will read it.

Status Fixing Legislation

GREAT deal of discussion is taking place these days about price fixing. While this is an important item, the term "price fixing" does not go to the bottom of the question. Price fixing is simply one of the details of a larger subject. The fundamental principle involved is that of fixing the status of groups by legislation.

Many people think the law of supply and demand determines everything. It undoubtedly plays a great part in fixing the status of different groups, but there are many artificial barriers that prevent it from operating with complete freedom. We are living in a complicated, man-made, legal and economic structure. Society is organized largely by groups. Each group is endeavoring to secure the passage of laws and to obtain such other advantages as will benefit its members. If one or more groups obtain special advantages of any kind, it means that other groups must obtain less than their just share of return, for there is only so much national income, now amounting to about 66 billion dollars annually, to go around.

It is generally understood that taxation is improperly distributed and that other groups are favored at the expense of agriculture. The Adamson Act limits immigration and restricts the supply of labor, thus tending to keep labor prices higher than they otherwise would be. The railroads, through the Esch-Cummings Act, have their valuation fixed, and they are permitted to make up to five and three-fourths per cent on this valuation. The Interstate Commerce Commission has fixed rates that enable them to make approximately this amount. The tariff laws artificially raise the prices of many commodities. Without discussing the question as to whether or not these measures are justified, there can be no doubt but that every one of them is a status fixing proposition. They favor certain groups, and this must be done at the expense of other

Agriculture has been the one large unorganized group of the country, and it has therefore been least able to take care of itself. Recent studies have shown that while farmers represent 29.9 per cent of the population, they received only 18 per cent of the national income in the peak year of 1919-20 and only 10 per cent of it in 1920-21. It is not surprising that such conditions should exist in view of the status fixing legislation now in operation.

Status fixing legislation is a bad thing. There ought to be none of it. But if there is going to be any of it at all, it is just as fair for one group to have it as another; in fact, if it must exist, the only fair method is for our lawmakers to distribute such legislation among various groups of people as equitably as possible. Some of our politicians and representatives of big business are setting up a terrible howl about the so-called "price fixing" legislation proposed by certain farm They are struck with horror that groups. such a thing should be proposed for agriculture, but we have been giving out the same thing to other groups as a regular procedure for a long time, and they know it. They seem to greatly enjoy using the term "economically unsound," but we would point out to them that it is just as sound economies for agriculture to have status fixing legislation as it is for other groups. The best thing for the country to do is to repeal or modify the status fixing legislation now in effect as rapidly as possible. If this cannot be done, the next best thing to do is to distribute such legislation around as equitably as possible among the different groups of people.

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How Water and Nutrients Affect Fruit Setting

NE OF the most uncertain periods in the development of a fruit crop occurs each year while the trees are in bloom and for several weeks thereafter. This uncertainty arises from the fact that many tainty arises from the fact that many conditions influence the set of young fruits during this critical time. There is always the possibility that after the June drop too few fruits may remain for a satisfactory crop.

The purpose of this article is to call special attention to the influence of water and the nutrient supply of the flower and young fruit in deter-

the flower and young fruit in determining the set. The importance of proper pollination and the absence of destructive influences of weather, in-sects and disease should not be minimized as factors that favor a satisfactory set. These subjects de-serve special consideration in separate articles.

Shedding, a Normal Process

Shedding, a Normal Process

The shedding of flowers and young fruits is comparable in many respects to the shedding of leaves in the autumn. The process is entirely normal and may occur in the absence of diseases, insects and other destructive agents. Provisions for removing the fruiting structure are found in a thin plate of tissue located at the base of the flower stem (Figure 1). The cells of this tissue have the ability to alter their adhesive properties and thus cause the loss of the entire structure beyond the zone of separation. It is of interest to note that this special function is easily brought into play at blossoming time and throughout the early stages of fruit development, but after the June drop the cells at the base of the fruit stems do not respond very readily to conditions that previously caused them to separate from

very readily to conditions that previously caused them to separate from one another.

There are many treatments that will bring about separation. Under normal conditions, however, this results most frequently from reduced activity or slow growth. It is important to remember in this connection that the blossoms of our fruit plants are highly specialized structures which exist as such only a short time. Left to themselves they soon degenerate, become inactive and are finally lost. In order to remain on the tree they must be infused with new life and stimulated to renewed activity. This stimulation naturally occurs as a result of pollination and fertilization. result of pollination and fertilization. Pollination, then, is an essential step in fruit formation and is necessary to enliven the flower and to start the development of the fruit, and thus counteract the influences that result in the normal process of shedding. But if the growth of young fruits—

even those that have had the necessary stimulation which enabled them to beenabled them to be-gin development—is greatly retarded or suspended at any time before the June drop, they are liable to be sepa-rated from the tree. Continuous and ac-Continuous and active growth, especially during the early stages of development, appears to be necessary to insure the final setting of funit Such ting of fruit. Such vigorous growth re-Such quires, among other things, an abun-dance of water and

Fruits Must Compete for Growth-Produc-ing Substances

nutrients.

By A. J. Heinicke Cornell University

also with the leaves and newly formed are cut off on one side of a tree by

This competition is very deep plowing close to the trunk. Prac shoots. great, since there is an especially urgent need for water and other materials needed for growth from the time the flowers begin to open in spring until the terminal buds form several months later. It is of special importance in this connection to connection to point out that leaves seem to have a better chance than have flowers and young fruits to obtain the necessary water and nutri-ents. This can

easily be observed

when large roots

Figure i.—Longitudinal section through the cluster base (D) and fruit stems
(A, C) of the apple

The fruit attached at A has set for the time being; the one at B has dropped, leaving a scar; the one at C is shown in the process of separation. The scar at E marks the location of a leaf.

tically all the flowers or fruits on the side of the

tree having the roots cut will be lost even though the leaves sur-

The importance of an abundance of sap for the setting of fruit can also be demonstrated by the following simple experiment: The sap wood on a branch two inches or more in diameter is cut with a saw to a depth of onefourth to one-half inch below the bark just about the time the flow-ers are opening. The leaves on the

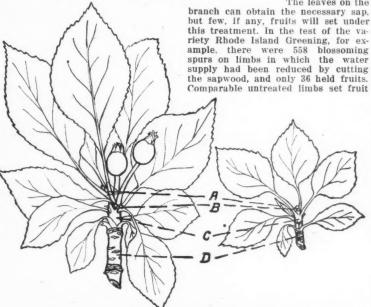


Figure 2.—Vigorous and weak spurs from variety Tompkins King
The first drop resulted in the loss of all flowers from the weak spur at the right.
Some flower scars are shown at B. Compare also the number and size of leaves, the
amount of new growth (A), the size of the cluster base (C), and the length and
diameter of the preceding year's spur growth (D).

on 191 of the 569 blossoming spurs. Photographs of portions of limbs treated in this way are shown in Fig-

Water Shortage May Decrease Set of Fruit

of Fruit

To be sure, such a reduction in the water supply is much greater than normally occurs. Nevertheless, a water shortage may frequently exist at some period previous to the June drop. There are, for example, many clear, warm days in early spring when an enormous amount of water is given off by the leaves. Most readers know that the water must be taken from the soil by the roots and conducted through the trunk and branches to the succulent tissues all over the tree. Even though there is an abundance of water in the soil, it cannot always reach the leaves there is an abundance or water in the soil, it cannot always reach the leaves as rapidly as it is lost. Under such conditions, the fruits will probably not get as much sap as they require for active growth, thereby endangering the set. In extreme cases the leaves may even withdraw water previously stored in the fruit

ing the set. In extreme cases the leaves may even withdraw water previously stored in the fruit.

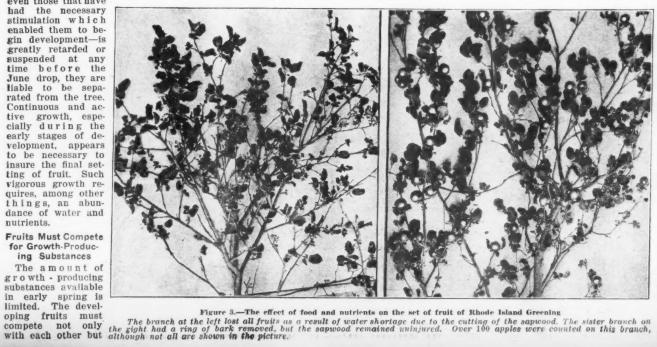
While the loss of water by leaves is largely governed by weather conditions which cannot be modified, it is possible to conserve the supply and also to reduce the demand, thus giving fruits a better chance to survive. This may be done by early cultivation of the soil and especially by judicious pruning, which reduces the leaf surface during the early critical period of fruit setting. Rather severe pruning is frequently required to cause fruit to set on Anjou pears even though the weather is favorable and cross pollination is possible. There is some evidence that other varieties of fruit that are inclined to set poorly will produce more satisfactory crops if heavily pruned. Such pruning will, of course, reduce the flower bearing surface, but more fruit may actually be borne on the smaller tree if the percentage of flowers that set is greatly increased. In this connection it may be pointed out that a large number of flowers is cot essential for a maximum set. A medium bloom may give as good a crop as a heavy a maximum set. A medium bloom may give as good a crop as a heavy bloom, and the chances of annual crops may be greater in the former

Nitrogen Increases Set

By reducing the bearing surface and the number of growing points. pruning may also bring about a better supply of soil nutrients to the remaining fruits and leaves. Nitrates are among the most important of such soil nutrients. Experimental and practical results have very definitely indicated that the set of fruit may be benfited by an increase in the supply of nitrogen. Trees in

of nitrogen. Trees in sod, or on very poor sandy soil where ni-trates are usually low, are almost certain to show a better set of fruit if from five to 10 pounds of sodium nitrate or ammo-nium sulphate are applied to the soil under each tree a few weeks before the blossoms open. the blossoms open. Fall plowing or early cultivation in spring makes available nitrates from the soil in time to influence the set as well as the growth. Sometimes trees on cultivated land which show no better growth as a result of nitrate fertilizer do show an increased do show an increased set of fruit from the application of nitrates. Such an in-(Concluded

on page 50)



Raspberry Growing in the Northeast

By W. H. Darrow

WHILE raspberry growing in the northeastern states is not so important an industry as in some other sections of the country, there are many individual growers who have been quite successful in the culture of this fruit. A few growers culture of this fruit. A few growers in Connecticut have also been testing out several of the newer varieties of raspberries for several years. Some interesting yield data by varieties has been obtained.

Latham Variety Liked

In the spring of 1922 several Connecticut raspberry growers started "Raspberry Variety Demonstrations" in co-operation with the Extension Service of the Connecticut Agricultural College. These growers agreed to buy 50 plants each of any varieties regreeted and to grow them, under suggested and to grow them under suggested and to grow them under the supervision of the Fruit Specialist, keeping a record of the yield from each variety. Some of these plots have completed their fourth season's growth and the yield records for the ast two seasons are therefore avail-

In 1924 accurate yield records were secured from two growers and two other growers indicated approximate yields or preference by varieties. These figures are tabulated below: Connecticut Agricultural College

stance, the Cuthiert variety showed the red varieties in rows six or seven considerable dwarfing of the canes and a low yield at Southington as a result of mosaic, while the Latham variety (two rows away) was apparinjured little, if any, by the

disease.

In conclusion let me say that I believe the Latham red raspberry is one of the best varieties for commercial planting in New England.

Other varieties besides Latham which might be considered for the mid-season or late crop are Cuthbert and Herbert. Among early varieties

and Herbert. Among early varieties the choice should probably be made from June, Perfection and St. Regis.

The St. Regis is a so-called "everbearer." that is, it has one crop on the old caues in the spring and another extern the new cares in the other crop on the new canes in the fall. The fall crop is usually small unless the season is especially long, and the quality of the berries is not high. It is worth trying in the home garden, however, and fairly good results can be expected from it on the lighter soils in southern New England.

Several of our growers secured last

feet apart and the plants two and onehalf to three feet apart in the row. Another method is to plant them in hills about five feet apart each way. Under the first method, cultivation is practiced only one way, while under practiced only one way, while under the latter method, they may be culti-vated both ways. The plants sucker freely and when planted by the row system soon run together, forming a solid row. The planting is done either in the fall or early spring, using the plants which grew the previous sea-son. The plants should be set only a trifle deeper than they were before trifle deeper than they were before digging.

If set during a rainy period, the

operation will scarcely check the

growth of the plants.

The black and purple raspberrie are more often grown under the hill system than is the case with the red varieties. A common method is to plant them five or six feet apart each way and to tie the canes to stakes. Another method is to plant them the same as the red varieties and encoursame as the red varieties and encourage them to branch low down by
pinching off the ends of the new
shoots when they are two to three
feet high. When trained by the latter
method, stakes are not usually

Pruning Raspberries

needed.

It has been our experience that red raspberries should be pruned as follows: At the time of planting, the canes should be cut back to within six or eight inches of the ground. The first season after planting, the canes should not be allowed to bear any fruit. The second season a par-tial crop may be expected, and the third season a full crop. In bearing fields the old canes should be cut out soon after the harvest is over. These should be burned to destroy any in-

to become more stocky and to throw out strong lateral branches. In the spring these lateral branches should be cut back to four-bud or six-bud lengths.

Recent experiments in Michigan have shown that such a severe heading back of the laterals will show little change in the total yield in quarts. It reduces the number of berries but results in an increase in their size. The large berries are easier to pick and will sell for several

easier to pick and will sell for several cents per quart more on the Connecticut markets.

If trained to stakes, the black and purple varieties need not be tipped back in the summer as suggested above but can be cut back one-quarter or one-third their length the following spring and then tied to the stakes. stakes.

Insects and Diseases

The most serious pests of the red raspberry in New England are mosaic and the raspberry fruit worm. Crown gall is also sometimes troublesome. The growers of black raspberries also have the anthracnose to contend with.

have the anthracnose to contend with. The raspberry fruit worm and antracnose can be controlled fairly well by spraying, while the only known control for the mosaic and bluestem is to dig up and destroy all diseased plants. The apparently healthy plants on either side of a mosaic plant should also be destroyed, since these might have become infected recently even though they had developed no even though they had developed no outward signs of the disease. The mosaic diseases are believed to be spread from plant to plant by one or more species of aphis. These insects, however, are usually rather scarce, and spraying or dusting for their control has not given satisfactors. trol has not given satisfactory results

trol has not given satisfactory results as yet.

W. H. Rankin of the New York Agricultural Experiment Station at Geneva has been able to secure commercial control of mosaic by the rogueing method suggested above. He reduced the mosaic infestation on the grounds of the New York Experiment Station from about 33 per cent the grounds of the New York Experiment Station from about, 33 per cent in 1922 to about one per cent in 1925. He gives the per cent of mosaic diseased plants as follows: 33 per cent in 1922, 20 per cent in 1923, seven per cent in 1924 and one per cent in 1925. He suggests rogueing as the best known means of control. Growers should plant the best stock obtainable, rogue carefully and propagate ers should plant the best stock obtainable, rogue carefully and propagate only from healthy plants, or better from healthy rows or sections of the field. The Herbert and St. Regis varieties are apparently seldom attacked by mosaic. The Cuthbert is quite susceptible. The Latham is believed by some to stand up well in spite of the disease. Some of the other varieties should be planted with caution at the present time, due to the difficulty of securing disease-free planting stock and their susceptibility to this disease.

The raspberry fruit worm is a diffi-

The raspberry fruit worm is a diffi-The raspberry truit worm is a dim-cult pest to control. The Connecti-cut Experiment Station has shown that four or more arsenate of lead sprays applied from the time the adult beetles first appear in the spring until the blossom buds begin to open until the blossom buds begin to open will greatly reduce the infestation. The arsenate of lead was used with a spreader at the rate of two pounds (dry) to 50 gallons of water. Four applications, applied at one-week intervals, reduced the infestation from about 79 per cent to 11 per cent. Thorough cultivation from late summer to early fall will also kill many of the pupae, as they have only been observed in the upper three-fourths of an inch of the soil.

Anthracnose is often a serious disease of black raspberries in New England. It usually appears first as pur-

land. It usually appears first as purplish colored spots near the base of the canes. However, it may also attack the leaves and fruit. Good cultural practices will help greatly in

(Concluded on page 48)

		Ouarts per acre		Rank.
Variety.	3-year plot. Southington.	2-year plot. Branford.	3-year plot. Southbury.*	3-year plot. Middletown.
Latham	2.400	1.104	1.650	First
Herbert	888	936		Third
Cuthbert	1.:'	360	1.650	Second
Perfection	1.068			Third
fune	912	168		Third
St. Regis	1.716			* * * * * *
Marlhoro	84	81	* * * *	
Erskine Park	588			
*Grower at Southbu	ry profes Lati	ham variety.		

Connecticut Raspherry Vields-1924

In 1925, accurate yield records were from the same two as in 1924. They were as follows:

Connecticut Raspberry Ylelds-1925.

	Quarts r	
Variety.		3-year plo Branford.
Latham	1.776	5,430
Herbert		3,648
Cuthbert	3.568	3,600
Perfection	2.112	
June	2.088	600
St. Regis	2.016	
Marlboro	576	108
Erskine Park	528	

The superior yielding ability of the Latham variety was clearly demo strated in both 1924 and 1925. strated in both 1924 and 1925. Besides being productive, the Latham Is an attractive berry of good quality. The berry is lighter red than Cuthbert, more round and more firm, but not of quite so high quality. The variety was formerly known as Minn. No. 4 and was originated by the Minnesota Agricultural Experiment Station, being a cross between King and Louden. From my personal observation I can say that the Latham appears to be perfectly hardy in Connecticut and also in southern Ver-Connecticut and also in southern Ver-

Special Bulletin No. Minnesota Experiment Station has the following to say about the Latham variety: "The most desirable of the variety: "The most desirable of the thoroughly tested red raspherries now available for the Northwest; heavy yielder and hardy without protection in most parts of the state; excellent for home or market."

Bulletin No. 188 of the North Dektot Agricultural Everyment Sta

Dakota Agricultural Experiment Sta-tion states as follows: "At the Ex-periment Station at least, Latham has

outyielded any other variety two to one. No protection necessary here."
The season of the Latham is about the same as that of Cuthbert—perhaps beginning about the same time and lasting a few days later.

One of the strong points of the Latham variety is its apparent resist-ance to the mosaic disease. It seems to get mosaic as well as other varie-ties but apparently it has enough re-sistance to the disease to enable it to grow vigorously and to bear profit-able crops (at least for several years) in spite of it. During 1925, for inspring a few plants of the Newman spring a few plants of the Newman variety through the New York State Fruit Testing Association at Geneva, N. Y. This year we hope to get a good look at this variety. Its record at Geneva, Washington, D. C., and in its Canadian home makes it well

worth testing.

Among the black raspberries the Cumberland and Plum Farmer are by far the most popular in New England. Our black raspberry industry, how-



ever, has declined rapidly during the few years due to ravages by ic. Connecticut growers are willing to plant only small plots of black raspberries until more is known about control methods for this disease.

The Columbian is the most popular variety of purple raspberry. A new variety by the name of Brant is being recommended by the New York Agri-cultural Experiment Station and should be tested as soon as stock is available for planting.

Planting Methods

New England growers usually plant

sects and diseases present. In the spring the canes which grew the pre-vious season may be cut off about one-quarter or one-third their length, and the weaker ones should be removed entirely.

The black and purple raspberries are pruned somewhat differently from the red varieties. In addition to cutthe red varieties. In addition to cut-ting out the old canes immediately after bearing, the tips of the new canes should be pinched off when they have reached a height of 18 to 24 inches in the case of the blacks and of about 30 inches in the case of the purples. This causes the plants the purples.

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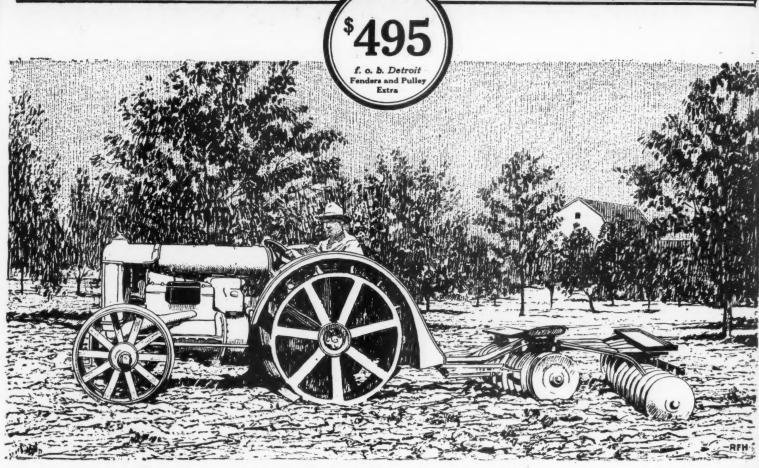
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Fordson at work in orchard of Wm. F. Udell, at Brockport, N. Y.

"We Grow Better and Larger Fruit"

"Aside from labor saving we find that use of the Fordson helps us to grow a better and larger crop because of the ability to conserve moisture with frequent use of the harrow in the orchards."

This statement of William F. Udell, of Brockport, N. Y., shows the way in which the use of the Fordson is adding to the profits of many

fruit growers. Udell also says his Fordson equals three men and six horses for harrowing.

For cultivating, spraying, hauling, pumping water for irrigation and many other tasks, the Fordson's compact build and convenient handling adds greatly to the amount of every day's work without additional help.

This year's profits in your orchard may depend on conserving moisture and keeping down labor expense. The new payment plan makes it easy for you to start this year's work with a Fordson. See your nearest Ford dealer today.

FORD MOTOR COMPANY, DETROIT, MICHIGAN

Fordson

Propagation of Fruit Plants

Part IV.—Propagation of the Apple, Pear and Ouince

By W. H. Alderman

University of Minnesota

THE APPLE is propagated by grafting or budding on seedling roots. In Part I mention was made of the source of such seedling stocks, the two common sources being French Crab stock grown in Europe and American grown seedling rope and American grown seedling stock. The French Crab stock is used stock. The French Crab stock is used very extensively by eastern nurseries while the middle western and western nurseries make liberal use of domestic grown seedlings. An important point to consider in connection with any seedling stock is that of its inherent hardiness to withstand cold. Ordinary apple seed, whether grown in France or in America, is perfectly hardy in most of the apple producing regions of North America. In ly hardy in most of the apple produc-ing regions of North America. In certain of the colder districts of North America, including the upper Mis-sissippi Valley and some sections of Canada, the ordinary commercial stocks referred to do not always prove hardy and root injury is of common occurrence. To overcome this defect, some propagators who are supplying a northern trade make a habit of collecting seed from only the hardiest of our American apples or from hardy crabapples. This seed produces a seedling stock sufficiently hardy to be safe for planting in the colder dis-tricts. A few nurseries have gone so far as to propagate their trees only upon seedlings from seed of the Siber-

Root Grafting the Apple

ian crab (Pyrus baccata)

One of the common methods used in propagating the apple is root grafting, or, as it is sometimes called, "bench propagating the apple is root grafting, or, as it is sometimes called, "bench grafting." This operation, which has already been described, can be carried on during the winter when work cannot be done out of doors. There are three types of root grafts used in propagating the apple. The first of these, known as the whole root graft, is one in which the entire root is utilized, the scion being inserted at is one in which the entire root is utilized, the scion being inserted at the crown. The small ends of the roots are cut away to facilitate planting operations, but essentially the entire root is used. The commercial apple seedlings are usually graded into two groups, known as straight roots and bushy roots. Either of these types bushy roots. Either of these types

may be used for whole root grafting. The second method is the more common one and was described in Part I. In this, straight roots are used and these are cut into sections about four inches long, with the scion placed in the upper end. Obviously the nursery tree propagated on a whole root will start in more vigorously in the ery tree propagated on a whole root will start in more vigorously in the nursery row than will one propagated on a piece root. Whether the whole root has any actual advantage over the piece root after the tree is set in the orchard is still a mooted question, with the probabilities in favor of a tie between the two contestants. tie between the two contestants

tie between the two contestants.

The third method of root grafting is one used by the more northern nurseries to overcome root killing. This is known as the "long-scion, shortroot" method. The seedling roots are cut into lengths of from two and one-half to three inches and a scion eight or nine inches in length inserted in the upper end of the root. Such a graft grows slowly in the nursery and takes at least an extra year to produce a tree suitable for orchard planting. Its advantages lies in the fact ing. Its advantages lies in the fact that the tree, when standing either in the orchard or in the nursery, will have its seedling root system planted at a considerable distance beneath the surface of the ground and will re-ceive a correspondingly high degree ceive a correspondingly high degree of protection against winter injury. Furthermore, many varieties when grown after this fashion send out roots from the scion above the union. These upper roots growing from the hardy scion are entirely safe from winter killing. Those who live in regions where the minimum winter temperature. gions where the minimum winter temperatures go to 25 or 30 below zero would do well to consider the method of propagation of the trees which they plant in their orchard. Obviously, the least hardy of the above would be

the whole root graft, the ordinary piece root would be intermediate, and the long-scion, short-root tree the most resistant to winter cold.

Care of the Grafts

It was pointed out in an earlier issue that it was unnecessary to wax the unions of root grafts. It should be mentioned in this connection, however, that within recent years some nurseries have adopted the habit of displays the agency part in meltid part. nurseries have adopted the nabit of dipping the scion part in melted par-affin so as to cover both scion and union. The advantage claimed for this practice is the greater resistance of such grafts to infection with crown gall. This method is mentioned with-cut recommendation or grifticism by gall. This method is mentioned with-out recommendation or criticism by the writer since the whole crown gall problem is being investigated by able research men. Until their official re-port is made public, it would be well not to draw too many hasty conclu-sions regarding this much discussed matter

The Wisconsin Agricultural Experiment Station has recently conducted experiments in methods of propagation and they find that special care should be taken in making the root should be taken in making the root graft, or any other graft for that matter, to have the upper bud of the scion directly over the point of best and closest union of the graft; that is, the side of the graft where the cambium of the stock and scion come together should be directly under the top bud of the scion. The sap flow in the tree is very nearly straight up and down and if maximum growth is to be secured from this upper bud, it should be in a direct line with the union of the cambium tissue. bium tissue.

Care of Trees In Nursery

In southern and eastern United States a fairly well branched nursery

tree may be secured in two years' time if the whole root or a good-sized piece root graft is used. Where the long-scion, short-root method prevails, three years' time is taken to produce what is generally known as a two-year-old branched tree. For this two-year-old branched tree. For this latter group the suggestion is made that after the first growing season the that after the first growing season the tree which has made a growth of 15 to 20 inches should be cut back nearly to the ground. The object of this is to have the nursery plant send up a strong, vigorous shoot the following year that will grow to three or four feet in height and will make a smooth straight body for the tree. If this is not done, and growth is allowed to continue from the end of the short first-year shoot, it will usually result in a rough and sometimes crooked trunk, which is undesirable, from the standpoint of either salesman or buyer. At the end of the second year, this straight whip is cut back to the height at which it is desired to establish the head. This is usually from 30 to 36 inches, although many prefer the head established at 24 inches. From a market standpoint, a higher head seems to be preferable. prefer the nead established at 24 inches. From a market standpoint, a higher head seems to be preferable. The whole root graft will usually make a trunk tall enough to allow heading at the end of the first year's growth and the side branches formed the second year.

Budding the Apple

In propagating apple trees by budding, the seedling stocks are lined out in the nursery row in the spring and are budded near the ground the ensuing summer. Budding should not be practiced on French Crab or ordinary domestic grown seedlings which are to be studying in the porthern disnary domestic grown seedlings which are to be planted in the northern districts. In budded trees the original seedling stock will come to the surface of the ground even after it is planted in the orchard. If these seedling roots should happen to be tender to extreme cold, it will result in the destruction of the tree during the first severe winter that comes along. Seedlings of Pyrus baccata or seedlings selected from hardy varieties may be safely budded, even for northern lo(Concluded on page 27)

Rambles of a Horticulturist

By C. E. Durst

HIS is not a propitious time of the year to ramble through the year to ramble through orchards and fields, but a number of our readers have expressed a desire for more rambles articles and I therefore made a trip down to Urbana, Ill., recently to hear what Secretary W. M. Jardine and ex-Governor Frank O. Lowden had to say about the agricultural problem. These two great leaders represent opposing viewpoints in a question which is important to farmers in particular and to the country in general. It is always worth while to study what two leaders of this kind have to say on such an imthis kind have to say on such an important subject.

Secretary Jardine stated at the out-

set that he preferred to talk extem-poraneously but that in view of his official connection he had reached the conclusion that it was better policy to place his thoughts on paper re-garding such an important question. He therefore read a manuscript. He his talk under eight main s, which, briefly summarized, were as follows:

Summary of Secretary Jardine's

 High taxes are second only to low prices as a problem of serious concern to farmers and fruit growers. Our system of valuation can be materially improved and the tax burden lightened by reducing inequalities in assessments and by giving greater consideration to the earning power of the land fixing assessments

cultural production further than is necessary to complete new projects.

3. Better credit facilities a

are needed by many farmers. Credit ma-chinery, especially intermediate credit facilities, should be developed and extended so as to serve farmers during times of depression as well as during periods of prosperity.

4. We must have substantial readjustments in freight rates. High rates contribute to farm depression. The whole freight rate structure needs

The whole freight rate structure needs overhauling, taking into account the market value of farm crops.

5. Good roads should be brought as near as possible to every farm. The states and the federal government should co-operate in this problem.

6. Waterways should be developed in the interior sections of the country so as to lower transportation rates

so as to lower transportation rates

from such sections to foreign markets.
7. Individual farmers can do little to solve marketing problems, but through co-operative associations they can market products more efficiently and less costly. The department is now fostering a bill which provides for the setting up of a division of co-operative marketing in the United States Department of Agriculture. United States Department of Agricul-

The surplus problem is a seri-one in agriculture. It underlies consideration to the earning power of the land fixing assessments.

2. The government should not continue to develop new lands for agricultural situation. It tends to disproportionately lower prices for the entire production.

Secretary Jardine is opposed to government price fixing and to govern-ment handling of farm products. He believes that this problem can best be handled through some farmer-controlled agency. He stated that in his opinion the new Dickinson bill offered some common ground for solution of the farm problem. Although he does not agree with all the provi-sions of the Dickinson bill, he sees in a rightly constituted agency of this na a rightly constituted agency of this nature the possibility of attacking the surplus problem in a constructive and scientific way. A board like the one proposed can become a powerful spokesman for American agriculture. Secretary Jardine stated that he was calling conferences with leaders in an calling conferences with leaders in an effort to find a solution to the problem. He stated that the economic conditions back of the agricultural situation are producted by uation are undeniable.

Does Not Fully Satisfy the Farmers

Does Not Fully Satisfy the Farmers
The Secretary's speech made a
much better impression with the 1700
farmers in attendance than that of
President 'Coolidge in Chicago in December. However, it did not fully
satisfy them. While Secretary Jardine seemed to clearly recognize the
agricultural problem, he was too indefinite about methods of solution to
satisfy those present. The Secretary
said nothing whatever about the
tariff in relation to agriculture. In
the writer's opinion, he went about as the writer's opinion, he went about as

far as anyone in his position could far as anyone in his position could be expected to go, considering the stand which had previously been taken by the administration. The speech of Secretary Jardine indicated at least that progress is being made toward the bringing about of a meeting of minds of administration leaders and the farming groups.

Summary of Ex-Governor Lowden's Address

Ex-Governor Frank O. Lowden talked the following day. Mr. Lowden's wife is a daughter of the Pullmans, of Pullman car fame, and Mr. Lowden was formerly a lawyer and he served as governor of Illinois for eight years. He has thus had the opportunity to secure a broad view of politics and of big business. Furthermore, he lives on a dairy farm at Oregon, Ill., and he is also heavily interested in cotton farming in the South. He has studied the farm question intently in recent years, and he is a firm believer in co-operative marketing. After discussing the farm Frank O. Ex-Governor Lowden keting. After discussing the farm situation in general, Mr. Lowden dis-cussed the surplus problem in particular. Surpluses are inevitable and necessary, according to him. The farmer must produce enough to feed the people. A surplus should be a good thing for him as well as for everyone else. The big crops of corn, cotton etc. yield hig profits to everyone. everyone else. The big crops of corn, cotton, etc., yield big profits to everyone but those who produce them. If the farmers must bear the crushing burden of the surplus under the slow operation of economic laws, the (Concluded on page 30)

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Paper 10



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The Honeybee as an Aid in Fruit Growing

I NSECTS play a most important role in fruit production. There are insects which are destructive, and these must be combatted. There are others which are beneficial, and these deserve encouragement. The these deserve encouragement. The honeybee belongs to the latter class. It is one of the most important agencies in bringing about cross pollination, which exercises a large influence in the setting of fruit, particularly of some varieties. Fortunately. larly of some varieties. Fortunately, the role of the honeybee is becoming well understood by fruit growers, and now receiving more considera-than ever before.

discussing the honeybee Before itself, I want to discuss sex in plants and the method by which cross pollination is brought about. The importance of the honeybee in fruit production will then be better appre-

Pollination of Fruit Flowers

Sex in plants is almost as common as in animals. As in animals, the sexual organs of many plants are quite distinct. The male organs of quite distinct. The male organs of fruit flowers are the anthers and the female organs the stigmas, each being typically located at the tip of stalks which are placed near the center of the flower. The male organs or anthers produce the pollen, which falling on the female organ or stigma, germinates and sends a tube down through the stalk bearing the stigma to the ovary, where the embryo seed

germinates and sends a tube down through the stalk bearing the stigma to the ovary, where the embryo seed is to be formed. The male nucleus from the pollen, thus uniting with the female nucleus in the ovule, completes the process of fertilization, the first step in the development of the next plant generation.

Some flowers may be self-fertile or self-pollinated, that is, they may be capable of fertilization by pollen from the same plant or the same variety. Other flowers may be self-sterile and thus require cross pollination; that is, they may require pollen from another plant or even another variety for proper fertilization. That cross pollination is always desirable and sometimes necessary for fruit flowers has been repeatedly shown by investigations both in America and abroad. In Oregon, Lewis and Vincent found 57 of the 87 varieties of apples studied to be self-sterile, requiring cross pollination. Studies by Waugh in Vermont and Maryland gave simstudied to be self-sterile, requiring cross pollination. Studies by Waugh in Vermont and Maryland gave similar results. Waite in New York and Fletcher in Michigan and West Virginia, found that Bartlett and Kieffer pears should not be planted without provision for cross pollination. Waugh's experiments showed that the 55 varieties of native plums and five varieties of Japanese plums were selfvarieties of Japanese plums were self-

Observing fruit growers have likewise furnished corroborating evidence. Thus, H. M. Dunlap, a well-known Illinois orchardist, has made the statement that orchards in Illinois planted to one variety seldom, or never, bear large crops, while nearby orchards with mixed varieties commonly produce excellent yields.

monly produce excellent yields.

It has been shown further that even for fruit flowers which are self-fertile, cross pollination, besides assisting in the set improves the size and uniformity of the fruit. In fact, the crossing of different individuals, in both plants or animals, usually produces progeny with greater vigor than self-fertilization or inbreeding.

Methods of Cross Pollination

Cross pollination may be accomplished naturally in two ways: first, by wind, and second, by insects. Pollination is accomplished by wind in the case of some grains and grasses and certain trees, especially conifers and nut-bearing trees. Such plants produce an abundance of pollen, which is dry and powdery and easily carried by the air currents. Such plants are notable for the absence of nectar glands and showy flowers.

On the other hand, flowers requiring the assistance of insects in cross

ing the assistance of insects in cross

By J. J. Davis Purdue University Agricultural Experiment Station

pollination have sticky and heavy pollen which is not readily carried by the wind. Also such flowers are more or less showy and produce nectar secretions which are attractive to insects. Fruit flowers belong to this latter type.

Honeybee versus Other Insects in Cross Pollination

Many insects, such as bees and wasps, butterflies and moths, beetles

pollen are especially noteworthy. In the case of many insects with biting mouth parts, such as the beetles which feed upon pollen, we usually find the mouth parts or surfaces near the mouth densely clothed with hairs. Certain of the moths are provided with long tongues to reach the nectar in flowers with long corollas, and the

body is clothed with hairs, to which the pollen grains easily adhere. Flies and especially bees which frequent

Honeybees at work in a cluster of apple blossoms

and flies, visit fruit flowers, and most of these are more or less adapted for carrying pollen from one flower to another. The structural adaptations to permit or assist in the transfer of

flowers are provided with twisted or branched hairs which are especially suited to hold and carry the pollen grains. While all of these insects are capa-

a and f, anther and filament; s, stigma; ov, ovary; d, disk where nectar is secreted. (After Waite)

ble of carrying pollen and all are attracted to flowers, it is nevertheless true that one insect, the honeybee, is responsible for the fertilization of 90 per cent of the deciduous fruit flowers.
Why? First of all, the honeybee is admirably adapted for carrying pollen. It is not only adapted because of its structural characters but also because of its habits. Unlike most insects, bees are present and active from very early spring until late fall. They are hees are present and active from very early spring until late fall. They are the only insects which pass the winter as adults in large numbers in most sections of the United States, and therefore they are numerous in the spring during the fruit blossoming period. They labor continuously from morning till night. Even during the night bees are busy transferring honey to suitable cells and feeding their young. Furthermore, the honeybee has the habit of visiting only one species of flower on a single trip from the hive or even in a whole day's work, and this is of greatest importance, for it insures transfer of pollen to the same species of flower. species of flower.

species of flower.

The facts already brought out show that in most cases cross pollination is essential to profitable fruit growing, that many crops require the assistance of insects in cross pollination, and that of the insects attracted to fruit tree blossoms and responsible for their proper fertilization 90 per cent are honeybees. These facts are being recognized by many fruit growers, and the establishment of bee colonies in orchards is increasing.

Why Should the Orchardist Keep Bees?

The honeybee is more valuable to American horticulture in its work of cross pollination than as a honey producer, but its actual monetary value in this connection is impossible to estimate. A few instances might be cited to illustrate our point.
C. L. Burkholder, Extension Horti-

culturist of the Purdue Agricultural Experiment Station, tells of a case at Belleview, Ohio. In this instance an Belleview, Ohio. In this instance an apiary of perhaps 200 colonies was located near one end of an 80-acre cherry orchard. The year the observations were made the trees near the apiary bore a heavy crop, the set of fruit gradually decreasing as the distance from the apiary became greater. The owner of the orchard was so thoroughly convinced of the monetary value of bees to cherry production that thereafter he paid a small sum to the owner of the apiary to distribute the colonies throughout the orchard. the orchard.

the orchard.

Another striking example was observed at Tell City, Ind., in a backward season, about 1917 or 1918. Several colonies of bees were located at one end of the apple orchard. After the fruit set, and later, there was a definite fruit area in the vicinity of each of the colonies, although elsewhere in the orchard little or no fruit set.

Still another interesting case might be mentioned. In a certain locality in an eastern state, the severe winter in an eastern state, the severe winter of 1911 and 1912, together with foul-brood, greatly reduced the number of bees. A colony of bees was moved into the center of a small block of peach trees in the spring of 1912. As a result, these trees set all the crop they could carry, although other orchards in the vicinity in which bees were not present failed to set a crop. The above cases refer to exceptional years. In the usual season bees fly from long distances and provide all of the cross pollination neces-

bees fly from long distances and provide all of the cross pollination necessary. But not so every fourth, fifth, or sixth year, when the weather is cool or rainy during the blossoming period. It is then we need colonies of bees in the orchard, for the bees do not fly from distant apiaries under such conditions.

Every orchardist should give careful consideration to the matter of

ful consideration to the matter of keeping bees for the sake of his own orchard. He will find the bees inter-(Concluded on page 27)

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A Real Fruit Co-operative By C. E. Durst

THE FENNVILLE (Mich.) Fruit Exchange held its annual meeting at rennvile on February 13. As usual, this meeting turned out to be an especially good one. This was to be expected in view of the excellent work which this co-operative has been doing and because of the spirit prevailing among its members.

A morning session was held at which A morning session was held at which various business problems received consideration. Notwithstanding a season of reduced yields, the association paid a dividend of seven per cent on the capital stock, it improved the condition of its buildings and equipment during the year, and it added \$1894.30 to the treasury balance.

Important Action on Variety Question

The most important action taken was with reference to the variety question. J. A. Barron, Manager, and the officers and members have been discussing the variety problem for some time, both at Fennville and elsewhere. They have taken the position that a reduction in the number of varieties handled would result in greater rieties handled would result in greater

rieties handled would result in greater efficiency.

Prof. V. R. Gardner, Chief of the Department of Horticulture at Michigan State College, was called upon and he gave an address in which he described the variety survey made by the department. A detailed study has been made of the variety situation among the members of eight co-operative fruit organizations in the state. The results were shown on large charts. The eight organizations have been handling a total of 133 varieties of apples. The average number per orchard is 25, and one member is growing 65 varieties. The prices received per bushel on the average for the last five years have ranged from \$1.91 per bushel downward. Prof. Gardner pointed out that the yield, Gardner pointed out that the yield, earliness of bearing, health of trees and grading qualities of the different and grading qualities of the different varieties should be taken into account, as well as the prices received. The McIntosh variety, fc. instance, has been grading out an average of about 71 per cent of A-grade fruit, while the Baldwin has been grading out only 38 per cent. rrof. Gardner's talk was much appreciated and a vote of thanks was passed following his address. As was passed following his address. As Prof. Gardner remarked himself, such an investigation does not add much to our knowledge of the theory of electrolytic disassociation, but it does bring out information that is of great value to practical fruit growers.

Reduce Number of Varieties to be Handled

After the variety question was discussed from all standpoints, and after every member was given an opportunity to express his views, a motion was passed covering the recommendations of the manager and officers. This motion provided that hereafter the executation will reach and process. This motion provided that hereafter the association will grade and pack only 50 listed varieties of apples, that the remaining varieties, constituting about five per cent of the total volume handled, will be marketed in bulk by the association in the best manner possible, that members be encouraged to remove or topwork the trees of these discarded varieties, and that growers be encouraged to confine their future plantings to six varieties, as follows: Jonathan, McIntosh, Green-Stark, Snow and Baldwin

This action represents a distinct advance in the marketing of Michigan fruit. While 50 varieties may seem to be a great many to some people, yet a large step has been made in going this far. No doubt the future will show where still further improvements may be made. The entire fruit indus-try of Michigan has been waiting to see what action Fennville would take in this matter, and no doubt, now that the step has been taken, it will be followed sooner or later by similar action at various points.

A matter was brought out by Mr. Barron which shows how thoroughly

this co-operative is studying the prob-lems of its members in order that it may be of the most service to them. Mr. Barron called attention to the charts displayed on the walls of the room. These showed the number of trees of each variety owned by each member, as well as the ages of the trees. This data was obtained by of-fering prizes to the members. Shipping records show the deliveries of members for each variety for several years. The association has collected data on the cost of spraying, pruning, cultivation, etc. Mr. Barron stated that this information would enable any grower to determine whether or not a certain variety was making a profit and that he would be glad to go over the situation with any mem-ber who would call at the office. This viewpoint is a marked contrast to that prevailing in many associations. In too many co-operatives, the association simply sells the products, returns the balance to members and then forgets about the matter. It is quite apparent that the leaders of the Fennville organization appreciate the fact that success in solving our agricultural problems depends on working out a well balanced program involving successful production as well as the handling and selling of the products.

Good Dinner Well Served

At the close of the business session. At the close of the business session, a dinner was served to members and their wives and families. There were probably 250 in attendance. The room and tables were beautifully decorated. The eatables were not only well chosen, well prepared and plentiful in amount, but they were served with the same efficiency that characterizes the association in general. James Bale and Ward Post, who direct the packing operations during the fruit season, had operations during the fruit season, had charge of the dinner and deserve great credit for their work. Everything was served hot, and there were no delays

of any kind.

After the dinner an hour was given over to dancing, excellent music being furnished by local talent. Another session was then called. After music and recitations were given by several persons, C. E. Durst of the American Fruit Grower Magazine talked on the subject, "Rambles of a Horticulturist." In this Mr. Durst spoke of the apple situation in various sections of the country, paying particular attention to the present condition and future ten-

the present condition and future tendencies in competing sections.

Officers were elected for the ensuing year, as follows: President, Leon Shepard; Treasurer, Frank Luplow; and Secretary, J. A. Barron. The above officers and the following directors will constitute the executive committee: Vern Kenter, Russel Knox, George Duval. U. S. Crane, T. L. Goodings Duval, U. S. Crane, T. L. Goodings and George B. Mechem. Efficiency is an important factor in

Efficiency is an important factor in the life of any co-operative, but a good spirit among the members is also of great importance. The Fennville Fruit Exchange enjoys a full measure of both. Co-operatives in other places, and particularly those just getting started, would do well to pattern their efforts after such organizations as that at Fennville.

Plow Under Cherry Leaves to Check Leaf Spot

DURING the past year many cherry trees, as usual, lost their leaves as a result of leaf spot long before the close of the season. Such conditions weaken the trees and without a doubt decrease the crop the follow-

ing year.

The disease is carried over the winter chiefly in the fallen leaves. If these are left to blow about the or-chard, spores from them will be blown to the trees in the spring and there they will again introduce the infec-

The leaf spot fungus can be de-

stroyed to a large extent and the disease kept materially in check by plowing under the fallen leaves late in the fall of the year, according to specialists of the New York Agriculspecialists of the New York Agricultural Experiment Station. This step, however, is only the first one in the control of leaf spot. It should be followed by a lime-sulphur spray just as the petals fall in the spring, by a second application about 10 days later, and a third application just before the fruit turns red. A fourth an fore the fruit turns red. A fourth application can advantageously be given just after the fruit is harvested.

Sweet and sour cherries are both susceptible to leaf spot. Sweet cherries are subject to burning with lime-sulphur. A fungicide containing one gallon of standard strength lime sulphur to 40 gallons of water will give best results with sour cherries, while for sweet cherries one gallon of lime-sulphur to 50 gallons of water should be used.

Fertilizing the Orchard

F. E. COLE, Manager of the Nashoba Fruit Producers' Association of Nashoba, Mass., recently gave out some directions for fertilizing orchards that should be interesting to growers in general. Mr. Cole pointed out that in general. Mr. Cole pointed out that the fertilizing method must be determined for each individual orchard. The individual trees must be studied with reference to their spurs, branches and limbs and the fertilizer program varied to meet the individual needs. An orchard should be considered as a group of individuals and not as a block of trees.

Mr. Cole gave the following specific recommendations:

1. Apply nitrate of soda approximately at the rate of two to four pounds for a 10-year-old tree, and approximately two pounds more for every five years of age, up to 10 to 12 pounds for a mature bearing tree in fair condition. This quantity depends entirely upon spur, branch, limb growth and production. There may be growth and production. There may be a few cases where none at all is the proper recommendation. Estimate the amount of nitrate to use according to last year's growth, and give the slow growing trees much more in comparison. Probably the length of shoot growth is the best single index of the condition of the free.

Apply nitrate of soda to young trees in quantities necessary to secure a firm terminal growth of from one to two feet.

When using ammonium sulphate instead of nitrate of soda, use four and one-half pounds of ammonium sulphate in place of five pounds of nitrate of soda. This amount is slightly more than the actual nitrogen con-tent would indicate, but is recom-mended on account of the suspected slower action of the ammonium sulphate.

4. Apply phosphorus and potash in your orchard as a mixed fertilizer whenever you can get results in your cover crop or sod. Use materials supplying these elements which are suited to your soil conditions.

5. Apply your fertilizer, especially nitrate of soda, and ammonium sulphate, one or two weeks before the time for the delayed dormant spray.

Washington Station Investigating Picking Dates

THE WASHINGTON State College is conducting an extensive investigation of picking dates and storage periods for several standard varieties of apples grown in the Yakima Valley. The work will be carried out under the direction of Prof. O. M. Morris, Head of the Horticultural Department. Chemical analyses will be made at the time of harvest for moisture, pectin, alcohol material and acidity. Analyses will be made at various periods in order to study progressive development. The pressure testing apparatus will also be used at the time of harvesting and at intervals in order to test the physical condition of the fruit test the physical condition of the fruit.

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Greater POWER and ENDURANCE in GMC Big Brute

WATCH Big Brute pull a heavy load up a steep hill—watch it plow its way through "heavy going". Then you will realize its greater power. You can load it to full capacity—and more—knowing it is powerful enough to master the toughest job a truck is ever up against.

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53 Horsepower Engine—An engine powerful enough to master any job a truck is ever up against.

2 Range Transmission—Two separate pairs of constant mesh gears give the countershaft two separate speeds. By merely shifting the range lever (which is easily accessible from the driver's seat) the power can be transmitted either through the low super-power range for "heavy going", or through the high driving range for usual requirements.

This two-range transmission—an exclusive GMC feature—develops 30 per cent more pulling power than is possible with the same size engine and the usual type of transmission.

This two-range transmission is also an economy feature. It makes it unnecessary to "overpower" the truck, and provides a power transmitting unit which assures economical operation under any and all conditions.

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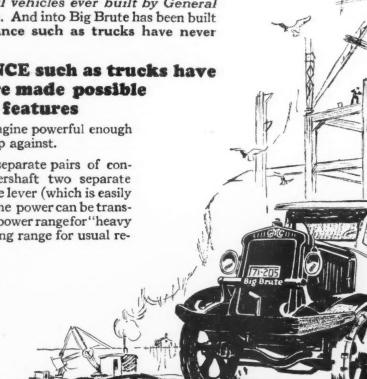
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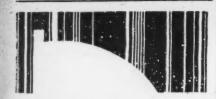
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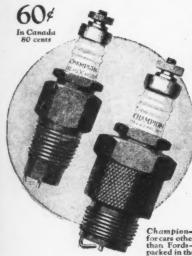




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A new set of dependable Champion Spark Plugs every 10,000 miles will restore power, speed and acceleration and actually save their cost in oil and gas.



HAMPION



The Editor's Mail Box

Paradichlorobenzene in the Spring

AMERICAN FRUIT GROWER MAGAZINE: Would you advise me to use paradichloro-benzene for treating peach borers? If so, please tell me when to use it for best results.—P. L., Massachusetts.

A NSWER: The best results in treating peach borers are secured by using paradichlorobenzene in the fall of the year. However, if you did not treat your trees last fall, it will be well to treat them during May of this year. For trees four or five years of age, use three-fourths of an ounce per tree. For trees six years old and tree. For trees six years old and older, use a full ounce per tree. Some experiment stations claim that trees younger than four years are damaged by the material. However, other authorities advise the use of one-half ounce per tree on trees three years ounce per tree on trees three years old and under. In any case, the mounds of earth should be removed from about the trees three or four weeks after the material is applied. The material should be pulverized and applied in a narrow ring around the trunk of the tree, allowing none of it to get nearer than about two inches to the tree.

Lawn Grass Seed Mixtures

American Fault Grower Magazine: Please give me information as to the amount of lawn grass seed to purchase, where to purchase it, and how to sow it. —J. E. L., Ohio.

ANSWER: You can obtain ready mixed grass seeds on the open market, but quite often such mixtures are unreliable. Not only is the seed often of low germination but such mixtures frequently contain high percentages of chaff, dirt and weed seeds. seeds.

It is best to purchase lawn grass

seeds in the unmixed condition from reliable seed dealers. High grade Kentucky blue grass seed and red top seed should form the basis of mixtures for most soils and locations. A mixture of two to five parts of blue grass to one part of red top by weight will prove valuable for general pur-poses. White clover may be added by poses. White clover may be added by those who like clover, at the rate of one-sixteenth part by weight. For shady locations and for certain soils, it may be well to add other kinds of seed, but the above mixture will be found good for general purposes.

In the porthern states, seeding early

In the northern states, seeding early in the fall usually gives best results, while spring seeding is recommended for more southern locations. The seed should be sown at the rate of about one ounce per square yard for a new lawn and should be raked in lightly. It is essential that a thick stand be obtained from the beginning. Old lawns may frequently be rejuvenated by raking the bare spots into a bed of loose soil and then sowing grass seed at the rate of about one-half ounce per square yard. In the northern states, seeding early half ounce per square yard.

Control of Raspberry Beetles

AMERICAN FRUIT GROWER MAGAZINE: For two years my blackberries, loganberries and raspberries have been infested with a small insect about three-sixteenths of an inch long, which seems to crawl out of the berries. Can you tell me what they are and what we can do for them?

--E. M. B., Oregon.

A NSWER: I think your raspberries must have been infested with the American raspberry beetle. The adults are small, light brown beetles that appear in May. They feed on the buds and young leaves and later attack the blossoms. The eggs of this insect have not been discovered, but they are probably laid on the young fruits, since the larvae are often found they are probably laid on the young fruits, since the larvae are often found in or on the berries. The full grown larvae are nearly white in color and about one-fourth inch in length.

Experiments in Ohio indicate that this insect can be controlled by applying arsenate of lead, six to eight pounds in 100 gallons of water. The

as the first beetles appear. Fr and shallow cultivation of the the fall of the year will probably stroy many of the pupae in t wintering quarters.

Mulch for Strawberries and Small Fruits

and Small Fruits

AMERICAN FRUIT GROWER MAGAZINE: I have had some experience in the mulching of strawberries and other small fruits which will probably be interesting to you and to readers of your excellent magazine. I grow white biossom sweet clover on separate land and cut it when the blossoms begin to appear. I allow the hay to cure, and then I pile it up and leave it that way until the time arrives for applying the mulch. By handling the material in this way, it will be of a rather woody texture and will not mat down tightly on the plants.

This mulch has proved satisfactory with me for strawberries, raspherries and currants. For raspherries and currants, alfalfa is also a good mulch. It mats down and does not blow away. The nitrogen content of both the alfalfa and sweet clover helps to keep the soil rich in nitrogen and makes nitrate of soda unnecessary.

I grow alfalfa in my cherry orchard. I mow this twice each season and apply the hay as a mulch under the branches. The trees show the same vigor and growth as is obtained from commercial forms of nitrogen.—O. H. S., Pennsylvania.

ANSWER: We appreciate your letter very much. We agree with you that sweet clover and alfalfa used in this manner will prove successful as mulches. Many other growers who are not in position to buy straw or other mulching material at satisfactory prices will do well to consider the method described by

at satisfactory prices will do well to consider the method described by

Grafting Lilacs

AMERICAN FRUIT GROWER MADAZINE: I have some choice lilacs that I would like to graft on roots that will not sucker. Can you tell me what stock to use so that the lilacs will grow to tree form?—G. J., Michigan.

ANSWER: You can graft or bud the lilacs on roots that will not sucker. You can probably obtain in your vicinity the roots of some variety of lilac which does not sucker hadly. your vicinity the roots of some variety of lilac which does not sucker badly. Such stock will be excellent for this purpose and will probably be as good as any you can buy. The common lilac usually does not sucker badly and this is often used as a stock for the sucker producing varieties. and this is often used as a stock for the sucker-producing varieties. The privet (Ligustrum) is also sometimes used as a stock for lilacs. Budding is more commonly employed than grafting in the case of lilacs. However, you can graft successfully during the late winter. late winter.

The Tariff on Fruits

AMERICAN FRUIT GROWER MAGAZINE: In these days when the tariff question in relation to agriculture is attracting so much attention, I believe fruit growers will be interested in the amount of tariff assessed on the different fruits. Can you secure these figures and present them to us in the Mail Box?—J. A. K., Michigan.

A NSWER: The application of our present tariff law in regard to fruits is covered in Paragraphs 734 to 750 of the Fordney-McCumber Tariff Act now in force. The paragraphs covering fruits are as follows:

"Paragraph 734. Apples, green or ripe, 25 cents per bushel of 50 pounds; dried, desiccated, or evaporated, two cents per pound; otherwise prepared or preserved, and not specially provided for, two and one-half cents per pound. pound.

ound.
"Paragraph 735. Apricots, green, ripe, dried, or in brine, one-half of one cent per pound; otherwise prepared or preserved, 35 per centum ad va-

orem.

"Paragraph 736. Berries, edible, in their natural condition or in brine, one and one-fourth cents per pound; dried, desiccated, or evaporated, two and one-half cents per pound; otherwise prepared or preserved, and not specially provided for, 35 per centum and valorem.

"Paragraph 737. Cherries, in their natural state, sulphured, or in brine, two cents per pound; maraschino cher-

application should be made as soon ries and cherries prepared or preserved in any manner, 40 per centum

ad valorem.
"Paragraph 738. Cider, five cents per gallon; vinegar, six cents per proof gallon: Provided, that the stand-

per centum by weight of acetic acid.

"Paragraph 739. Citrons and citron peel, crude, dried, or in brine, two cents per pound; candied or otherwise prepared or preserved, four and one-balf cents per pound; candied or otherwise prepared or preserved, four and one-balf cents per paragraphs. half cents per pound; orange and lem-on peel, crude, dried, or in brine, two cents per pound; candied, or otherwise prepared or preserved, five cents per

'Paragraph 740. Figs, fresh, dried. or in brine, two cents per pound; pre-pared or preserved in any manner, 35

"Paragraph 741. Dates, fresh or dried, one cent per pound; prepared or preserved in any manner, 35 per

or preserved in any manner, 35 per centum ad valorem.

"Paragraph 742. Grapes in bulk, crates, barrels or other packages, 25 cents per cubic foot of such bulk or the capacity of the packages, according as imported; raisins, two cents per pound; other dried grapes, two and one-half cents per pound; currants, Zante or other, two cents per pound.

"Paragraph 743. Lemons, two cents per pound; limes, in their natural state, or in brine, and oranges, one cent per pound.

"Paragraph 744. Olives in brine,

per pound.

"Paragraph 744. Olives in brine, green, 20 cents per gallon; ripe, 20 cents per gallon; ripe, 20 cents per gallon; pitted or stuffed, 30 cents per gallon; dried ripe olives, four cents per pound.

"Paragraph 745. Peaches and pears, green, ripe, or in brine, one-half of one cent per pound; dried, desiccated, or evaporated, two cents per pound; otherwise prepared or preserved, and not specially provided for, 35 per centum ad valorem.

tum ad valorem.

'Paragraph 746. Pineapples, 22½
cents per crate of 1.96 cubic feet; in bulk, three-fourths of one cent each;

bulk, three-fourths of one cent each; candied, crystallized, or glace, 35 per centum ad valorem; otherwise prepared or preserved, and not specially provided for, two cents per pound.

"Paragraph 747. Plums, prunes, and prunelles, green, ripe, or in brine, one-half of one cent per pound; dried, one-half of one cent per pound; otherwise prepared or preserved, and not specially provided for, 35 per centum ad valorem.

"Paragraph 748. All jellies, jams,

wise prepared or preserved, and not specially provided for, 35 per centum ad valorem.

"Paragraph 748. All jellies, jams, marmalades, and fruit butters, 35 per centum ad valorem.

"Paragraph 749. Fruits in their natural state, or in brine, pickled, dried, desiccated, evaporated, or otherwise prepared or preserved, and not specially provided for, and mixtures of two or more fruits, prepared or preserved, 35 per centum ad valorem: Provided, that all specific provisions of this title for fruits and berries prepared or preserved shall include fruits and berries preserved or packed in sugar, or having sugar added thereto, or preserved or packed in molasses, spirits, or their own juices.

"Paragraph 750. Berries and fruits, of all kinds, prepared or preserved in any manner, containing five per centum or more of alcohol shall pay in addition to the rates provided in this title \$5 per proof gallon on the alcohol contained therein: Provided, however, that nothing in this Act shall be construed as permitting the importation of intoxicating liquor in violation of the eighteenth amendment to the Constitution, or any Act of Congress enacted in its enforcement."

It may interest you to know that during 1923, the amount of duty col-

It may interest you to know that during 1923, the amount of duty collected under the above paragraphs was \$7,509,069.

"Of course," gushed the sweet young thing to the handsome actor, "you get hundreds of mash notes. Tell me, do you write the answers yourself?" "I do," he replied. "But," he added, "my wife dictates them."

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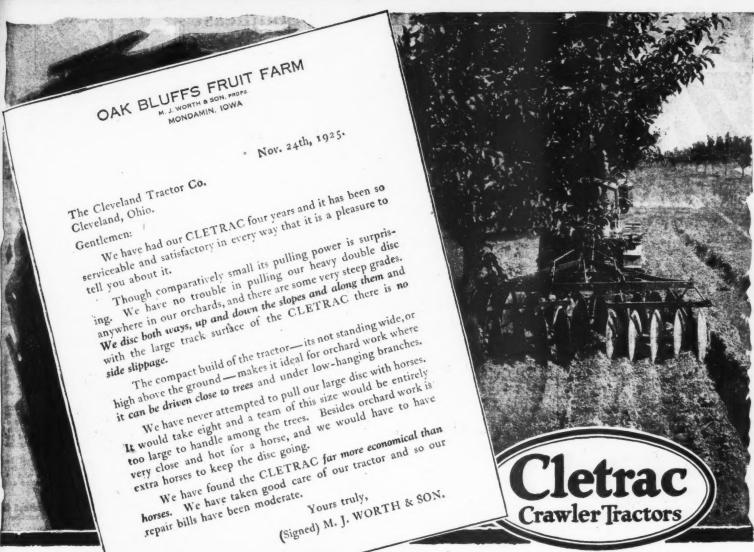
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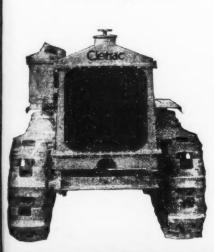
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Cletrac Beats Them All Among the Trees!

FOR orchard work there is no other tractor equal to Cletrac. Built close to the ground, Cletrac can be driven under low-hanging branches—right up to the trunks of your trees for a perfect and thorough job.

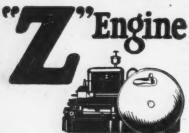


With its abundant power, low-cost operation, compact build and short turning radius, the Cletrac is unquestionably the most suitable tractor for the fruit farm. Its powerful engine and sturdy frame fit it for the heaviest kind of work. Its broad tracks insure positive traction—always—even on steep hillside jobs. And its "Snap" system of lubrication means thorough oiling—instantly and easily—by a push of the hand plunger.

Write us today for complete information and the name of our nearest dealer, who will demonstrate Cletrac superiority for you.

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That's why a half million farmers have bought "Z" Engines. These famous power plants are made in the world's largest and finest engine factory. The country's foremost engineers design and develop them. While the "Z" has less parts subject to wear, those parts are carefully made, are drop forged and specially heat treated.

Thelowprices are due to our huge production. Sizes from 2 to 20 horsepower. See your local Fairbanks-Morse dealer or write for free literature and see why the "Z" is the biggest "dollar-for-dollar" value.



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Fruit Growing in the Southeast By O. F. E. Winberg

Co-operative Marketing

THE MARKETING of fruit and produce has developed considerably during recent years, and we believe that the producers begin to see more and more the necessity for distribution of their products through co-operative organizations. However, the producer must understand that the full benefit of co-operative marketing full benefit of co-operative marketing cannot be secured until the co-operative agencies control a greater amount of the tonnage. At the present time, the net results of co-operative marketing has been principally the elimination of unfair practices from which the growers suffered in years gone by. In order that co-operative marketing shall come into its own to a

In order that co-operative market-ing shall come into its own to a greater extent than heretofore, there are certain fundamental principles that must be laid down for the co-operative organizations to follow, in order that their efforts may be successful.

Should Not Be Oversold

 Every new organization must be based upon sound business principles. Those engaged in the organization work must take care not to make any statements other than those based upon actual sound business.

The cost must be counted be-2. The cost must be counted beforehand, as far as possible, rather
than after. In other words, the overhead expenses should be calculated as
closely as it is possible to do so before an organization begins business,
and the membership should be informed as to what the approximate
expenses are going to be. This will
avoid disappointment. High overhead
has been responsible for the wrecking
of more organizations than any other of more organizations than any other

3. The distribution of the com-modities handled by the co-operative organizations must be handled by persons competent in this line of business. The co-operative organizations must take into consideration that there is a vast difference between an organizer and an executive. It is, therefore, important that the management of a co-operative organization be composed of men who are competent and absolutely honest, and who not only understand the business in which they are engaged, but also understand it from the producers' standpoint.

Co-operation in Production

4. It should be the aim of the producers to gradually develop co-operation in production as well as distribu-

tion.
The elimination of waste in the production of any commodity is one of the essentials in successful competi-tion. Nothing but first class products should be shipped. Inferior products do not bring good prices, and therefore, in the end, they are costlier to produce.

Every organization should work towards producing a standard com-modity of the highest quality so that when it sends out quotations, trade may rely on getting good qual-

trade may rely on getting good quality.

While it holds true that supply and demand determine prices, it is also true that poor quality never brings the prices that good quality does. If it is true that the producer receives only one-third of the prices paid by the consumer, then should not the producer inquire into the reasons why and wherefore and gradually corwhy and wherefore and gradually cor-rect that situation? May it not be that a commodity goes through too many hands before it reaches the consumer? Each handling of a commodity necessarily means an added cost.

Producers Should Have Greater Control

A greater control on the part of the producer of the handling of his commodities from the time they leave the shipping point until they reach

the consumer should be one of the aims of the co-operatives. This can be attained only through a gradual development. The sooner the producer becomes more independent and the sooner real business methods are introduced in co-operative marketing, the gradual the sooner will the beneficial for the sooner will the beneficial effect reflect itself in a greater return to the grower. This cannot be attained in one year or even five or 10 years, because it must not be a change along revolutionary lines, but rather it must come as an evolutionary development. The producer must more and more go into business in earnest in order to be

into business in earnest in order to be really independent.

Legislation to relieve the farming situation is not the proper solution; governmental support in the form of credit is not the solution; the solution rests with the producer himself. tion rests with the producer himself. Co-operation today must not be based upon sentiment; it must be based upon hard, sound business methods that are practiced by any other successful big business. If agriculture is what we all claim it is—the greatest business in America today—then why should not the greatest business be handled as such?

Bear in mind that as the waste be-

Bear in mind that as the waste between producer and consumer is reduced, it is possible for the producer to receive more in proportion for the commodity he is producing and for the consumer to pay less, thus making it possible to increase consumption. High prices to the consumer are not conducive to increased consumption.

Pecan Culture in the Southern States

WHILE the growing of paper shell W pecans has been successfully carried on for the past 25 years in many sections of the southern states, the success has not been general.

The same rule that applies to the growing of any kind of fruit will apply to pecan culture, namely, thorough cultivation, growing of cover ough cultivation, growing of cover crops, ample plant food and spraying for the control of insect pests and

In the early days of pecan culture, many people had the erroneous idea that a pecan tree could be made to produce and brought into bearing without much effort on the part of the orchardist. Long experience has disproved this idea. We find that the orchardists who have made a success of pecan growing are the ones who have recognized the fundamental have recognized the fundamental principle underlying fruit production, namely, that wherever there is not sufficient plant food in the soil from which the tree may draw, the deficiency must be supplied. In most cases, the amount of plant food applied has been inadequate.

One of the most successful growers of pecans on the Gulf Coast is Theo Bechtel, of Ocean Springs, Miss. He applies from a ton to a ton and a half of commercial fertilizer per acre, and in addition thereto, he plants cover crops, which are plowed under. As a result, he gets a good crop every

There is no doubt of the profitability of pecan culture in the Gulf Coast section, but the growers need not expect good results until they recognize

pect good results until they recognize the necessity for adequate application of plant food, the growing of cover crops and good cultivation.

The next item of importance is that of insect and disease control, of which the pecan scab is the most serious, particularly on certain varieties, such as the Schley, for example. Unless this disease is controlled, the supply of plant food, cultivation, etc., will not yield results.

Pecan culture in the South deserves far more attention than it is getting at the present time. Pecan growing is an industry which will not only benefit the South, but it will be a help to the country in general.

to the country in general.



for A

San Jose Scale Conquered!

This persistent pest is no longer a problem. It is quickly, easily, and effectively controlled by the use of Voick, an oil spray of a new type, which has introduced an entirely new standard of effectiveness and safety in the control of insect pests.

A Safe Summer Spray

A Safe Summer spray
Volck can be applied in summer
as well as in winter, whenever the
scale appears, without injury to
fruit or foliage. It not only kills
the pests and cleans up the trees,
hut rids the fruit itself of the scale
(even the red spots disappear), insuring quality and fine appearance.

The how used as a summer spray

suring quality and fine appearance.

It has been used as a summer spray for two seasons in the famous Wenatchee and Yakima Valleys, Washington, where it has produced amazing results on San Jose scale and codlin moth, and has been the means of salvaging many thousands of dollars worth of apples that would otherwise have been unmarketable.

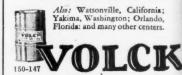
Used on Strawberries

Volck has also given highly satisfactory control over red spider on strawberries, and over scale and other insect pests on very tender plants where the high hazard of burning formerly made control extremely difficult.

In the citrus groves of Southern California and Florida the use of Volck has revolutionized pest control methods, and has given amazing results even over the so-called resistant scales, which formerly resisted all efforts at control.

Write for booklet and full information on this new and better way to control insect pests and insure clean trees, big production and fancy fruit.

California Spray - Chemical Co. 204 Franklin Street, New York City





We Work Faster"

"Our farm runs like a machine since we got our fast-working Case tractor. It has speeded up all the heavier work—we never fail to plant and harvest our crops in good time. Its faster work has saved two crops for us that we must have lost without the Case. We have fewer horses, in better condition. Threshing and silo filling are done when they should be. All because the work goes faster with the Case.

J. I. Case Threshing Machine Co. Established 1842



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The new WILLYS FINANCE PLAN offers easy time-payment terms at the lowest credit-cost in the industry.

enger Sedan

More Quality for Less Money

The trim-looking light-car classic pictured above is the Overland Sedan, a full-size 5-passenger 4-cylinder beauty patterned on smart modern lines, clean-cut, rakish, low. A roomy car, carrying 5 full-grown people in cozy comfort. Body finished in polished lacquer, a rich deep blue with flashing black and nickel trimmings—as handsome a light car as you ever looked at.

Extra big doors—extra wide—easy entrance and exit to both front and rear seats ... The Widest Seats of any light car built—new single-piece undivided front seat, 39 inches wide, 19 inches deep. Wider back seat, 45 x 18—Lots of leg room ... Very latest one-piece Windshield—you can always see where you're going ...

Big Wide Windows—more than 20 square feet of window space—longer, deeper windows mean clear, uninterrupted vision . . . New Cowl Ventilator—a modern big-car feature—a comfort only more costly automobiles give . . . Triplex Springs with 30 inches more spring-base on a 100-inch wheelbase—easier riding, easier driving . . .

A 27-horsepower engine—sturdy, reliable—fast on the straightaways, great on the hills—extraordinary economy on gasoline and oil . . . Sliding Gear Transmission—three speed, selective—at the lowest price at which you can have a car with this modern transmission . . .

. . . if you've been thinking that only one maker could build the car you could afford, step in and see this Overland Sedan. Here's a modern closed car, priced at only \$595.

Prices and specifications subject to change without notice.

WITH SLIDING GEAR TRANSMISSION

WILLYS-OVERLAND, INC., TOLEDO, OHIO

WILLYS-OVERLAND SALES CO. LTD., TORONTO, CANADA



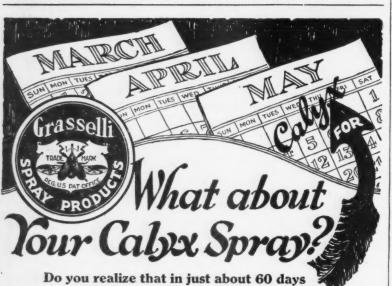
Outlasts All Substitutes

One pound makes 12 lineal feet of band three-inches wide. It remains effective three to four months—outlasting all substitute materials from 10 to 20 times.

Tree Tanglefoot is quickly and easily applied with a wooden paddle. For tree surgery nothing equals this material. It waterproofs crotches, wounds and cavities when nothing else will. Leading horticulturists everywhere endorse it. Seed, hardware and drug stores sell it. Prices: 25-lb. pail \$11, 10-lb. can \$5.25, 5-lb. can \$2.75, 1-lb. can 60 cents.

An illustrated book on leaf-eating insects sent free on request

THE TANGLEFOOT COMPANY GRAND RAPIDS, MICHIGAN



you will be applying your Calyx Spray? The fruit grower who sees to it that only GRASSELLI Insecticides go into the tank of his spray rig has taken a long step toward crop certainty.

As the dilute mixture spreads over the trees he has the comfortable assurance that his orchard is PROTECTED -as far as chemical science can do it.

In every fruit-growing and farming section, you will find a distributor for GRASSELLI GRADE-

nte of Lead Calcium Arsenate Lime Sulphur Bordeaux Mixture Casein Spreader Arsenate of Lead

THE GRASSELLI CHEMICAL COMPANY, CLEVELAND





 $\mathbf{T}^{ ext{HE}}$ WENATCHEE District Co-

THE WENATCHEE District Coperative Association in a recent reorganization campaign reached the established goal of 75 per cent of the tonnage of the district. The necessary total of about 1030 cars was passed on January 23.

The response of old members was excellent. At some points 100 per cent of them rejoined. A large number of new members has also been added. Quite a number of large growers are absent from the district at present, and it is expected that the at present, and it is expected that the tonnage will be further increased as these return home and as other contracts from outlying points arrive in the mails.

the mails.

The business organizations of the section bear a friendly attitude toward the association and this has helped materially to help establish the confidence of growers.

The association recently joined the National Council of Farmers' Co-operative Associations

tive Associations.

THE FEDERAL Trade Commission THE FEDERAL Trade Commission recently made a ruling that is of interest to co-operative members in general. The California Retail Fuel Dealers' Association had by boycott and in other ways prevented the Hayward Poultry Producers' Association and other co-operatives from buying coal direct from mines. The commission executed an order forbidding such sion executed an order forbidding such practices. The order will apply to co-operatives in general and will undoubtedly help to strengthen the status of co-operative associations.

THE Yakima Valley Grape Growers' Union held its annual meeting at Grandview, Wash., on January 28. During the year the membership was increased by 90 growers, amounting now to 225 members. A total business of over \$100,000 was done during 1925, as compared with a total of about as compared with a total of about \$45,000 in 1924. During the past year a total of \$90,000 was actually returned to members for grapes sold, out of a total of a little over \$100,000 received by the association. The cost of operation was less than 12 per cent of the gross receipts. During the past season grapes were sold in 13 states.

The association voted to request the

The association voted to request the state department of horticulture to call a grading and packing conference early in the spring to adopt standard grading rules for grapes. The tenta-tive grades of the United States Department of Agriculture are under consideration, and it is expected that they will be adopted.

The association is planning to conduct an organization campaign among the grape growers of the Granger, Zillah and Wapato sections. The as-sociation has been operating from nine shipping points.

nine shipping points.

The following directors were elected: E. V. Wyant, R. R. Wardall, F. A. Norton, A. L. Thiele, Grandview; L. Alsbury, Benton City; W. Fisher, Paul Hamilton, Prosser; Emory Thompson, Sunnyside. The following officers were chosen for the year 1926: E. V. Wyant, President; F. A. Norton, Vice-President; Thomas R. Robinson, Secretary, Treasurer and Manager.

BOUT a year ago the United States Senate directed the Federal A BOUT Trade Commission to make an inquiry regarding the growth and importance of co-operative associations, including comparative costs of marketing and distribution and of the extent and importance of interference with and obstruction to the formation and oper-

ation of co-operative associations.

This investigation was assigned to the legal investigation division of the commission, and the work is now being actively prosecuted. A series of conferences with important co-operative organizations in the Middle West was held during January. A questionnaire was sent out during the past month.

FARMERS of Pennsylvania did a business of \$32,409,000 through cooperative buying and selling organiza-tions in 1924, according to the Penn-sylvania Bureau of Markets. Five large co-operatives operating in several of the eastern states transacted business amounting to \$26,049,000 for Pennsylvania farmers, while 94 local associations made total sales aggregating \$6,360,000.

About 41,400 farmers, or approximately one out of every five in the state, are members of some form of co-operative association. The membership of these associations increased by almost 4000 from 1923 to 1924.

THE CO-OPERATIVE marketing bill
"H. R. 7893," which was introduced in the House by Representative
Haugen of Iowa, was passed on January 26, with only slight amendments,
by a vote of 358 to three. The same
bill was introduced in the Senate by
Senator McNary.
The bill proposes to establish a cooperative marketing division in the
Department of Agriculture and carries an appropriation of \$225,000 for

ries an appropriation of \$225,000 for the first year's work. The bill pro-vides the department with the authority to acquire and disseminate infor-mation on co-operation, to promote cooperative principles and practice and to call advisers to council with the Secretary of Agriculture on co-opera-tive activities.

A SECOND session of the American Institute of Co-operation will be held June 21 to July 17, 1926, at the University of Minnesota. This announcement was recently made by Charles W. Holman, Secretary of the organization, after arrangements had been made with the university offi-cials and with business men of St. Paul and Minneapolis in regard to the school

The school held at Philadelphia last The school held at Philadelphia has summer proved a success from every viewpoint, and there was a good attendance. It is expected that the course of instruction to be given the coming year will be even better than that of last year and that there will be an increased attendance. The be an increased attendance. The school is an excellent training place for those interested in co-operation.

"H ISTORY of the California Fruit Growers' Exchange" is the title of a 106-page booklet prepared by Miss R. M. McCurdy, Assistant Secretary of the exchange. The subject was investigated for about a year at the exchange's direction, and during this time records from every possible source were examined. source were examined.

The commercial growing of oranges

in California was started in 1841 where Los Angeles now stands. Grad-ually the plantings were extended to other districts. The marketing diffi-culties began when local consumption would not absorb the production. At this point the story of the California Fruit Growers' Exchange begins. The story is told in detail in the

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booklet. Besides giving a detailed acbooklet. Besides giving a detailed ac-count of the exchange and its devel-opment, the booklet includes copies of the contracts and by-laws in use from time to time. It gives the names of officers and it enumerates the dis-trict and local exchanges. Records of shipments since 1886 are presented, as well as the f. o. b. returns to

A CORRESPONDENCE course on co-operative marketing is being of-fered by Cornell University under the leadership of Prof. W. I. Myers. Twenty-five people had applied for this course before it was available for distribution.

distribution.

The course presents a survey of farmers' co-operative organizations. Special attention is given to marketing enterprises, although attention will also be given to buying organizations and other types of co-operative associations. Special emphasis will be placed on the business principles that are essential to success.

The 15 lessons of the course treat the leading topics of interest in regard to organizing and operating co-operative marketing associations.

tive marketing associations.

"INCORPORATION Plans for Fruit Marketing Associations" is the title of Circular 168, recently issued by the College of Agriculture, Columbia, Mo. The circular discusses the need for incorporating such associations, the advantages, the costs, and the liability of members. It also gives instructions for incorporating, and it presents suggestive articles of association, by-laws and an organization agreement. agreement.

THE WENATCHEE District Co-operative Association, Wenatchee, Wash., is operating under a budget system. At the beginning of the year the probable tonnage to be handled, the probable expenses of each department, and the probable income are estimated. At each monthly meeting of the board the manager submits a report along with a statement called "budget comparison." These statements indicate for each department and each expense account: (1) expense this month; (2) expense for same month last year; (3) total expense to same day and month last year; (4) total expense to date this year; (5) pro rata of budget allowed to this date; (6) total amount of budget; and (7) present balance in budget.

budget.
Such reports give members and the board a clear picture of the expenditures at given dates, and they also show comparisons with the operating expenses of previous years.
Eleven groups of items are considered in preparing the budget. These groups are divided into many accounts, the expenditures for which are estimated separately.

The budget for 1925 placed the estimated expenditures at \$95,775 and

The budget for 1925 placed the estimated expenditures at \$95,775 and miscellaneous receipts at \$6700, making a net expenditure of \$89,075. The estimates for some of the large departments were: sales, \$23,900; accounting, \$14,770; administration, \$10,900; and advertising, \$10,000.

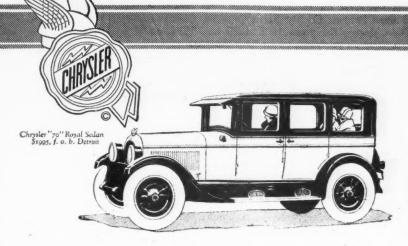
A short time ago before the close of 1925 it was estimated that 960,000 boxes of apples would be handled and that the cost of the service would amount to about nine and one-fourth cents per box, which would be the lowest per box cost of the association during the five years of its operation.

THE YAKIMA Fruit Exchange, Yakima, Wash., was organized on June 25, 1924, by three associations of apple growers in that section. The incorporation papers were filed on July 7, 1924, and on July 15 the organization began operations. A capital stock of \$10,000 was issued and one-third was subscribed for by each of the member associations.

of the member associations.

During the past season the exchange handled 132,401 boxes of apples. The handling expenses were \$8291, or 6.26 cents per box. Sales were made in 47 cities distributed in 25 states.

CHRYSLER



To All Women Who Do Not Ride In A Chrysler "70"-

Whatever car you ride inor drive, if you are one of the great army of women drivers-wecan promiseyou an entirely new delight in the Chrysler "70".

For the Chrysler "70" offers literally all of the things which women want most in their own cars.

Comparatively few women, it is true, care to ride as fast as 70 miles an hour; but the power which is indicated by 70 miles plus represents the utmost in acceleration, in smoothness, as well as in speed ability.

And think of a car without side-sway — a car so easy riding that you can travel at high speeds over cobbled streets or rutted roads-a

car which steers with such unbelievable ease that allday touring does not fatigue -a car made so safe by Chrysler hydraulic four-wheel brakes, and so compactly designed for easy parking, that you handle it with implicit confidence in any situation.

Chrysler is admittedly the style leader among motor cars—and that, of itself, is a genuine satisfaction.

The Chrysler dealer is eager to have you look at the beautiful Chryslers and give a leisurely inspection to all of their attractive features. Let him demonstrate its performance to you. Drive the car yourself-and then the next car in your family will be a Chrysler "70."

CHRYSLER SALES CORPORATION, DETROIT, MICH. CHRYSLER CORPORATION OF CANADA, LIMITED, WINDSOR, ONT.

CHRYSLER "70"—Phaeton, \$1395; Coach, \$1445; Roadster, \$1625; Sedan, \$1695; Royal Coupe, \$1795; Brougham, \$1865; Royal Sedan, \$1995; Crown Sedan, \$2095. Disc wheels optional.

CHRYSLER "58"—Touring Car, \$845; Roadster Special, \$890; Club Coupe, \$805; Coach, \$935; Sedan, \$995. Disc wheels optional. Hydraulic four-wheel brakes on all Chrysler "58" models at slight extra cost.

CHRYSLER IMPERIAL "80"—Phaeton, \$2645; Roadster (wire wheels standard equipment; wood wheels optional), \$2885; Coupe, four-passenger, \$3195; Sedan, five-passenger, \$3395; Sedan, seven-passenger, \$3595; Sedan-limousine, \$3695.

All prices f. o. b. Detroit, subject to current Federal excise tax. There are Chrysler dealers and superior Chrysler's attractive plan.

All Chrysler models are protected against their bar the Federal excise tax.

All Chrysler models are protected against theft by the Fedeo patented car numbering system, exclusive with Chrysler, which cannot be counterfeited and cannot be altered or removed without conclusive evidence of tampering.

Bodies by Fisher on all Chrysler enclosed models. All models equipped with full balloon eines.

A three-year apple test on the Clermont County Farm-

HERE'S the story of a three-year experiment with nitrogenous fertilizers on apple trees. The test was performed on the Clermont County Farm Orchard, Clermont County, Ohio, during the years 1922, 1923 and 1924, on bearing trees, now 12 years old, under both the grass mulch and the tillage cover-crop methods of culture.

And here are the results as given out by Mr. F. H. Ballou of the Department of Horticulture, Ohio Experiment Station:

Three-year averages-Yield in Pounds per tree

	Fertilizer per Acre	Grass Mulch	Tillage Cover Cros
No fertilizer		86.7	80.8
Nitrate of Soda	160 lbs.	221 4	2194
Sulphate of Ammonia	128 lbs.	250.6	295.1

Note: An addition of 4-5 pounds of Sulphate was applied to each "Sulphate tree, scattered under the outer branches; and an additional 1 pound of nitrate was applied to each "Nitrate" tree in the same way.

Acid phosphate at the rate of 200 lbs. per acre was applied to all plots. Varieties tested were Gano, Rome, Jonathan, Grimes, Stayman and York Imperial.

The test demonstrates two things: 1. That nitrogen is profitable on apple trees. 2. That Sulphate of Ammonia is as good or better than any other quick-acting form of nitrogen for apple trees.

Apply nitrogen to your own orchard. Our free bulletins will tell you how. Write for them—today!

ARCADIAN Sulphate of Ammonia

THE BARRETT COMPANY, AGRICULTURAL DEPARTMENT New York, N.Y.

Atlanta, Georgia Berkeley, Calif. Medina, Ohio

THE BARRETT COMPANY (address nearest office)	A-4
Please send me sample package of Arcadian Sulphate of A	mmonia.
I am especially interested in(Write name of crops on line above) and wish you to send me bulletins on these subjects.	
Name	
Address	



and Harrows n One Operation
ark "Cutaway" Tractor Orchard Plow is ideal
ting old hard sod. And as it will disk in a cwahout, requiring harrowing after gade and
a few parts of the second of the sec ing, bending of chipping.

If for further information about this salchine and book. "The Soil and Its Tillage." A postal will do.

> The Cutaway Harrow Co. 130 Main St., Higganum, Conn.



Packed @ Faced from the Bottom

No liners or packing device needed HOGUE'S E-Z-PAK BUSHEL

offers this exclusive facing feature and greater strength— better fruit protection—higher and safer piling—reduc-tion of shifting and crushing—distinctive display—fine storage qualities.

The E-Z-Pak Bushel is the better basket for your finer fruits. Since its introduction in 1922, there has been a remarkable yearly increase in its use by thousands of progressive growers, because of the many excellent features of this package.

10 FACTORIES

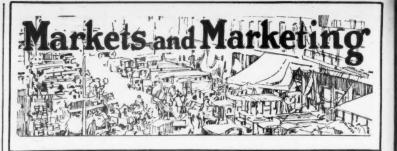
nuine stamped "E-Z-PAK



The E-Z-PAK Corporation,



Benton Harbor, Mich.



THE CALIFORNIA Fruit Growers' Exchange has improved its methods of handling low-grade lemons during the present season. Formerly, each local association disposed of its loose or cull lemons as best it could either to peddlers or by shipping them to the Lemon By-Products Company at Corona.

at Corona.

During the past season the exchange took charge of the selling of these fruits. The better grades of loose fruit were sold in Los Angeles and the lower grades of unmerchantable fruit were sent to the by-products plant at Corona.

During the eight months from February 20 to October 31, 1925, approximately 300 cars of lemons were sold through this channel. The returns paid out to growers amounted to \$176.

through this channel. The returns paid out to growers amounted to \$176,-792.34, or an average of \$2.21 per hundred pounds for everything sold.

The fruit was sold to 165 individual buyers. The fact that all of these buyers purchased from the same source and probably paid about the same prices kept them from bearing down on the prices unresonably. The down on the prices unreasonably. The consumers of Los Angeles were supplied with a better quality of loose lemons and at fairer prices than under the former system. The shippers marketed as large or larger a volume than that of any provious season and than that of any previous season and returns were higher. Furthermore, the low grade fruit was kept off the eastern markets to a greater extent than ever before.

THE GRAPEFRUIT industry of the past year of the Isle of Pines, Cuba, has proved one of the most profitable in the history of the island. Practically all of the shipments were completed during October, 1925, since fruit arriving later than this comes into competition with that from Florida and does not yield a profit because of the tariff in effect.

Exports from the island to the

Exports from the island to the United States of the 1925-26 crop aggregated 176,000 crates up to December 31, 1925, while 200,000 crates were shipped during the corresponding pe-riod of 1924-25.

riod of 1924-25.

When the controversy over the Isle of Pines was settled about a year ago and the island was placed definitely under the ownership of Cuba, the owners of grapefruit groves in the Isle of Pines thought that the end of profitable grapefruit culture had passed. However, the good prices received for the product during the past two seasons have encouraged the growers to place greater confidence in the to place greater confidence in the fruit as a revenue producer. The groves are now being carefully tended and trees which were neglected for a time are being cultivated back into bearing condition. No new groves are being planted, according to the United States Department of Commerce.

THE REPORT of the Bureau of Agricultural Economics for the year ending June 30, 1925, shows that re-ceiving point inspection of fruits and vegetables was made in 226 terminal markets. Branch offices were located in only 32 cities, but inspections at other points were made by inspectors

other points were made by inspectors located in nearby centers.
During the year 32,334 inspections were made at terminal markets. There was an increase of 3051 inspections over those of the previous year. In addition, 45,824,180 pounds of fruits and vegetables were inspected for the navy and marine corps; 1,174,221 pounds for the Munson lines; 5,989,281 pounds for the United States lines. pounds for the United States lines,

and lesser quantities for other interests. Many thousands of pounds were rejected as a result of these inspections and in other cases the prices were adjusted.

Additional co-operative agreements were entered into with Maryland, Michigan and Oklahoma, which states had not worked with the federal department in shipping inspection service before. Agreements with Alabama and Massachusetts were not renewed for the year, due to peculiar conditions existing in the onion growing sections in Massachusetts and to changes in methods of marketing vegetables in

A total of 127,500 cars were inspected at shipping points. There were 257 reinspections at receiving markets, 116 of which sustained the original inspec-

Department officials pronounce the aird year of inspection service a success from every standpoint.

THERE is a potential market for American apples in Paris, but it will take time to develop it, according to Edwin Smith, United States Department of Agriculture Fruit Specialist, who is making studies of the European fruit situation. The French classify apples as either cooking stock or dessert stock and pay low or high prices accordingly. Cooking apples prices accordingly. Cooking apples have been selling at 85 cents to \$2 per hundred pounds while dessert fruit has been selling at \$3.35 to \$6.75 per hundred pounds. The latter prices are beyond the reach of most Frenchmen.

For Parisian use a dessert apple must be free from bruises and defects. Many American shipments have fallen short on this score. Adverse exchange rates and promotion of the domestic product are two other factors in the situation. A better demand could probably be developed than can be satisfied by the French supplies. The principal problem seems to be that of transporting the fruit without damage. that of Direct shipment by steamer American to French ports, followed by carlot shipments to Paris, offers the best promise of avoiding the damage from bad handling under present shipping conditions.

DURING 1925 a total of 10,000 retail fruit handlers in England, Scotland and Ireland became members of the Retail Fruiters' Propaganda Association, according to a recent report of that organization. The principal object of the association is to encourage the use of greater quantities of fruit ject of the association is to encourage the use of greater quantities of fruit by the people of Great Britain. A number of novel ideas are being pushed, among which are the distribution of orange peelers, grapefruit knives, calendars, booklets, etc. While it is the plan of the association to stimulate fruit consumption in general, it is desired to particularly encourage the sired to particularly encourage the consumption of fruit that is produced in Great Britain and its possessions.

A BILL has been introduced in Congress by Representative Britten of Illinois which provides for the gradual adoption of metric units of weights and measures in merchandising after a transition period of 10 years.

Under the proposed law, manufac-turers could continue to use any measures they desire in production, but commercial transactions are to be conducted on a decimal basis, which has already proved so advantageous in regard to money. The Britten bill establishes familiar terms for the

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principal metric units. For instance, the meter will be called the "world yard," the liter will be called the "world quart," and 500 grams will be called the "world pound."

That there is keen interest in this issue is indicated by the fact that more than 100,000 petitions are on file with the Department of Commerce praging Congress to adopt metric legis-

urging Congress to adopt metric legislation. The legislatures of Illinois, California, North Dakota, Tennessee and Utah have memorialized Congress to pass such a law.

NEW YORK has about twice as many people as Chicago, but it consumes more than twice as many peaches. The five-year averages show that New York consumes about 3930 cars of peaches annually, while Chicago uses only about 1692 cars. Pittsburgh ranks third with a consumption of about 1000 cars per year. Philadel-

burgh ranks third with a consumption of about 1000 cars per year. Philadelphia uses about 928 cars yearly but receives considerable quantities of peaches from New Jersey by truck.

New York is a great consumer of peaches because it is located between the great fruit sections in New Jersey and New York, and it is also the leading market for Georgia peaches. About one-third of the total shipments from Georgia go to New York. The receipts from Georgia have averaged over Georgia go to New York. The receipts from Georgia have averaged over 2300 cars for five years. New Jersey markets about 395 cars of peaches in New York each year, and New York state sells about 621 cars in New York City. Only about 400 cars reach New York from all other producing sections combined, and more than 200 cars of these come from California.

After Georgia has shipmed about 400

After Georgia has shipped about 400 cars of peaches to Chicago each year, cars of peaches to Chicago each year, the nearer producing sections begin to supply that city with large quantities of peaches. Michigan sends about 250 cars to Chicago each season, and Illinois furnishes nearly 200 on the average. New York ships less than 100 cars to Chicago each year. About 325 cars are received by Chicago each year from Colorado, Washington and California, about 180 cars of these coming from California.

Monthly Market Review

THE FOLLOWING summary of the fruit marketing situation was furnished by the United States Bureau of Agricultural Economics on Febru-

of Agricultural Economics on February 6:

"Supplies of fruits and vegetables have been about 10 per cent lighter than last season in December, January and early February, mainly because of light shipments of potatoes, cabbage, onions, oranges and a few less important lines; but apples and various fruits and vegetables, especially western lettuce, came fully up to expectations. The shipments of fruits and vegetables for the season have reached a total of about 450,000 cars, which is only one or two per cent under last season's figures.

"The prices of fruits and vegetables are often considered high this season because of the attention attracted by such leaders as potatoes and cabbage,

because of the attention attracted by such leaders as potatoes and cabbage, which have been selling from two to four times as high as last year; but onions, sweet potatoes, lettuce and apples are lower this season, and some of the less important truck products have been selling at rather high prices. In general, the market has followed the usual winter course, moving up when cold weather interfered with current supplies and slumping back again as soon as the higher prices attracted heavier shipments.

Apples Decline Slightly

Apples Decline Slightly

"A number of scattered declines amounting to not over 25c by the barrel and 10c-25c on boxed apples give a rather weak and draggy appearance to the apple market. Some varieties which were in light production have fully held their own, but such kinds as the Baldwin have been selling from \$2 to \$3 a barrel lower than a year ago, and various other kinds from \$1 to \$2 lower than in early 1925.

early 1925. "Boxed Winesaps at northwestern

Spring's Work McCORMICK. DEERING

Showing McCormick-Deering 15-30 Tractor and Little Genius 3-bottom Plow

PRING'S WORK is swift and efficient when McCormick-Deering Tractors, Plows, Tillage Tools, and Seeding Machines are taken out on the fields. The ample power of these tractors and the quality and broad scope of the attached implements assure full use of valuable Spring time and the maximum saving of expensive labor charges. The burdens of production costs are kept down, giving you that early advantage to-ward profit, and the quality of the work adds appreciably to crop yield.

Then, when the seed is in the soil, the extreme versatility of the McCormick-Deering Tractor carries on throughout the year.

These tractors, besides being always ready for field and belt work, have the power take-off feature for running the mechanism of binders, corn pickers, and other field machines. They are equipped with throttle governor, adjustable drawbar, wide belt pul-

ley, platform, fenders, removable lugs, brake, They have removable cylinders, unit main frame, and ball and roller bearings at 28 points. They come to you complete—no extras to buy. They have plenty of power and long life. Made in two sizes, 10-20 and 15-30 h. p.

Now, with the full producing season ahead, see this popular tractor at the McCormick-Deering dealer's. Sit in the seat at the wheel to get the effect of running it yourself. The dealer will demonstrate the tractor at the store or at your home. We will be glad to send you a catalog.

INTERNATIONAL HARVESTER COMPANY

606 S. Michigan Ave. of America

Chicago, III.

Plows

McCormick Deering P & O and Chattanooga—all types walking plows and middle-breakers, steel and chilled. Two, three, and four-furrow moldboard and disk tractor plows. Sulky and gang, moldboard and disk triding plows. Orchard and vineyard plows. Special plows for every purpose. All standard types and sizes.

Tillage Implements

McCornick-Deering Disk Harrows in seven sizes, with or without tandem. Special orchard disk and reversible types. Tractor disk harrows. Spring-tooth harrows, eight sizes. Peg-tooth harrows, 25, 30, or 35 teeth to section. Wood-bar harrows. One-horse cultivators with 5, 7 and 9 shovels; also 7, 9, and 14 teeth.

Grain Drills

McCormick-Deering drills furnished in sizes 5 to 24 furtow openers; 4, 6, 7, and 8-inch spacing; all types of furrow openers. Press drills and press wheel attachments. Also fertilizer drills, beet drills, alfalfa drills, one-horse drills, end-gate and broad-cast seeders. McCormick-Deering lime sowers.

REMEMBER-"Better Farm Equipment Week," March 15th to 20th. See the McCormick-Deering Dealer

shipping points ranged \$1 less than last season and have been selling 50c-75c less in city markets. This poor price showing, with a marketable crop only about one-seventh larger, may be explained partly by the poorer color, appearance and keeping quality of the crop, causing some pressure to market a part of the holdings. If this is the correct explanation, the situation should improve now that a large proportion of the over-ripe, poorly colored and frosted apples are out of the way.

"In Canada they had much the same trouble with frosted apples and poorly colored fruit, especially from the central provinces; but this stock has been about cleaned up, it is reported. Canadian exports have been a little larger than last season, amounting to nearly a million bushels. Prices in Canadian markets have averaged lower than last season. shipping points ranged \$1 less than

lower than last season.

Other Fruits and Vegetables

"While potatoes, apples, cabbage and onions have been the leading features of interest, some of the early

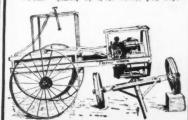
truck crops have attracted notice truck crops have attracted notice. California and Mexican peas were selling in February at \$7 to \$8 per crate. Florida strawberries declined rapidly from the opening high prices but were selling in February in northern markets at 50c to 80c per quart. which still is almost double the price of a year ago."

THE CANADIAN government is conducting an interesting experiment in marketing. It has purchased from Canadian growers 25,000 barrels of canadian growers 22,000 barries of representative varieties of apples. The government plans to ship these apples overseas in order to help the growers develop a market for the Canadian product, and it also plans to advertise

The fruit was purchased subject to government inspection. It will be branded with the government stamp. Growers will receive the market prices. In the event that the government makes a profit on the deal, the surplus will be pro-rated to growers after deducting transportation and selling costs. selling costs.

BUY"A"GRADE

If you want "A" grade fruit to sell you must do "A" grade spraying. "You can't depend on freak seasons when buse don't ent and no scab appears." The first essential in an "A" grade sprayer—one that does first-class work for years and years, with a low upkeep cost. "A" grade materials only are used in "Friend" Sprayers, therefore they are the best and cheapest to use in producing "A" grade fruit. Learn all about "Friend" quality sprayers before you buy.



"Friend" Manufacturing Co. 110 East Ave., Gasport, N. Y.

Fear Blight Control in the Northwest

PEAR blight destroyed 90 per cent of the probable pear crop and 20 per cent of the Jonathan apple crop in per cent of the Jonathan apple crop in the Milton-Freewater district in Walla Walla Valley, Oregon, last year. It also caused some decay of cherries shipped out of the valley, the infected cherries becoming a sticky, gummy mass. Some prune twigs were infect-

ed and blighted by the same disease.

These losses are all due to the few scattered plantings of pears through out the district, too few to be of real commercial importance, yet sufficient to carry enough blight to be a great menace to the growing apple industry. The prune and cherry industries see

these pear trees as a potential handicap.

The growers of the district under the leadership of former County Agent Bennion and Fruit Inspector Wilbur Bennion and Fruit Inspector Wilbur are freeing their community of this menace. Each pear tree is closely examined by an expert for blight, and all cankers are cut out and the grounds disinfected or the tree removed and destroyed. Trees having the infections cut out are later reexamined by the specialist and passed upon. Most of the pears are being pulled.

Pear blight is a serious trouble every five to eight years, not often enough to force a regular control program. Pears are recognized as an un-profitable crop in the valley, and it is

the concensus of opinion among the inconspicuous brown growers that all pear trees should be removed and no more planted. The organization, the sentiment, and the economic welfare of the district are all right for a real clean-up, and it is well under way.—Clayton L. Long.

"Cat Faced" Peaches

THE TERM "cat faced" is commonly applied to peaches which are deformed by scars or scabby spots from which the fuzz is absent. The difficulty has been attributed to a flower thrips which is often found among the blossoms. Recent investigations in Indiana indicate, however, that the injury is caused almost entirely by the tarnished plant bug, which is an

inconspicuous brown insect that breeds on a large number of plants but not to a great extent on fruit trees. It hibernates in the adult form in trash, weeds, etc. In the spring the insects begin to feed ravenously on anything that is green and juicy. They feed on the peach buds before they open and increase dropping of buds, blossoms and small fruits. In seasons of light bloom, they reduce the crop materially in many cases. As the small peaches begin to enlarge, the insects puncture them and suck insect the insects puncture them and suck out the juices. Apparently they also inject a poison which destroys the out the juices. Apparently they also inject a poison which destroys the pulp in small areas, leaving a small, irregular cavity. The tissue and skin near this area die and the adjacent area becomes corky and bare of fuzz and grows more slowly than the rest of the peach, causing the distorted appearance. The insect causes most of its damage within two or three weeks after the petals fall. Unfortunately no satisfactory control of this insect has been found. Since it winters on a large variety of plants, it would be practically impossible to eradicate it in its winter quarters. Contact insecticides have not proved effective, since the adult stage is very resistant.

stage is very resistant. Arsenical poisons are of no value. The Indiana Experiment Station is investigating this insect and it is hoped that satisfactory methods of control will event-ually be found.

Effect of Low Temperatures on Oil Emulsions

L UBRICATING oil emulsions freeze at 15 degrees Fahrenheit. On December 28 a minimum temperature of 10 degrees Fahrenheit and on the following day a minimum of 14 degrees Fahrenheit was recorded at Fort Valley, Ga. These temperatures are representative of the Peach Belt although in some sections an even lower though in some sections an even lower minimum was reached. These tem-peratures freeze all types of lubricat ing oil emulsions and sometimes cause them to break down, the oil separat-ing out and rising to the top. If this occurs, such emulsions are not only useless for scale control but dangerous from the standpoint of tree injury, and they should be discarded

or repumped.

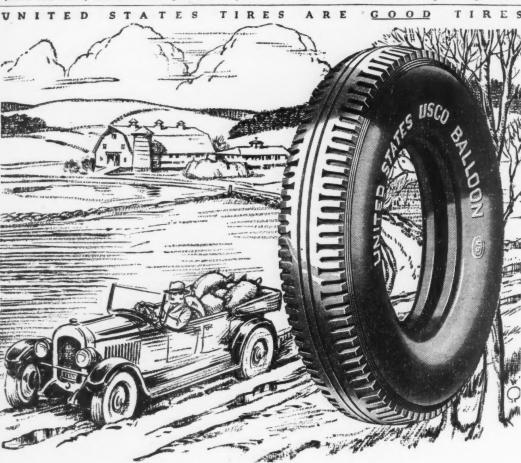
Before spraying operations are started, the stock emulsion should be examined for free oil before and after it is diluted with water. If the emulsion does not readily mix in the spray tank or if free oil or seum appears on tank or if free oil or scum appears on the top, the material should not be used. It should then be repumped, or returned to the manufacturer for reemulsification.

It is often possible to save the stock emulsion after it has frozen by let-ting it thaw out gradually without dis-turbing. If the material has the ap-pearance of a perfect emulsion upon thawing, it should be shaken well before using so as to make the heavier soap and water at the bottom go into the emulsion. — United States Peach Pest Laboratory, Fort Valley, Ga.

Does Electricity Speed Up Plant Growth?

Plant Growth?

Many experiments conducted during the past 75 years to determine the influence of electrical treatment of the soil or the atmosphere on the growth and yield of plant life have given rise to various conclusions. In England, where the electrical treatment has been applied by charging a network placed high enough above the growing crops to permit of cultivation with horses, increased yields are reported. Similar experimental work by the United States Department of Agriculture has failed to produce any well-defined increase in yield. Eight years of experimental tests by the department have not shown any positive response by plants to electrical treatment of either the soil or the atmosphere in which the plants were grown. At the present time there is still a diversity of opinion concerning the influence of electricity in plant development.



Independent of Road or Weather if you use USCO Balloons

IT is a comfort to feel that the tires on your car will carry you where you want to go no matter what the weather is or how bad the roads are.

The great success of the USCO Balloon lies in its ability to do that—and do it with-out harm to the tires.

When you look at an USCO Balloon you will at once notice how broad and flat its tread is. With so much tread area in contact with the road, there is always adequate purchase for a hard pull and for sure braking action.

You get the same advantage that the wide, flat wagon wheel gave over the earlier narrow rimmed wheels. In addition, the USCO Balloon has a highshouldered tread that takes a firm hold on the road.

The cord construction has unusual flexibility. You get real balloon cushioning—comfort for the passengers, protection for the car.

The USCO Balloon is made strong and sturdy. It will deliver length of service far beyond what its moderate price indicates.

It carries the trade mark and full warranty of the largest rubber man-ufacturers in the world.

For Ford Owners

There is a U. S. Tire to meet every need

U. S. Royal Balloons U. S. Royal Bulloon-29 x 4.40 straight side U. S. Royal Balloon-Type 31 x 4.40 clincher and stre

U. S. Royal Cords 30 x 3½ regular and extra-size clincher, 30 x 3½ and 31 x 4 straight side U. S. Royal Extra Heavy

Cords 30 x 3½ clincher for commer cial and extra heavy service USCO Cords

30 x 3 and 30 x 3½ clincher, 30 x 3½ and 31 x 4 straight side **USCO Fabrics**

30 x 3 and 30 x 31/2 clincher

United States Rubber Company

USCO BALLOONS

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Fertility and Crop Production

THE SOIL fertility question has been investigated extensively in recent years, and an enormous literature has accumulated on the subject.

recent years, and an enormous literature has accumulated on the subject. It is a relief, therefore, when a good book appears which summarizes this voluminous information and presents it in usable form for our convenience. Such a book is "Fertility and Crop Production," prepared by S. F. Hinkle of Sandusky, Ohio.

Mr. Hinkle became interested in the subject while conducting graduate study at the Ohio State University, and he prepared the book as a result. He reviewed the investigations and teachings of the leading authorities on soil fertility. His book is written in plain language, and he has succeeded to a remarkable degree in gathering together in condensed form the important facts pertaining to the subject. The volume represents five years of direct effort and the reading of 12,500 references by the author. The material is presented from the standpoint of the various crops, although definite information regarding the fertilizing of important crops is included. Considerable attention is devoted to the fertilizing of fruit and vegetable crops, as well as general farm crops. The book is well illustrated.

The volume is offered for sale by S. F. Hinkle, Sandusky, Ohio, for \$3.10 postpaid. This price is quite reasonable compared with the prices ordinarily asked nowadays for books of similar character.

Apple Survey of the United States and Canada

THE NEW YORK Central Railway
has recently published a large
bulletin which contains an "Apple Survey of the United States and Canada."
The author is J. W. Rees, formerly of
the New York (Cornell) College of
Agriculture and for three years field
organization manager for the Western
New York Fruit Growers' Co-operative Packing Association.
The bulletin is the result of a careful study of the entire apple situation

The bulletin is the result of a careful study of the entire apple situation of the United States and Canada. Mr. Rees visited most of the important sections in person. The production in each section is shown by maps and tables, and a discussion of the present situation and future prospects for each section is also given.

The bulletin will prove of great value to commercial apple growers. Copies may be obtained free of charge from the New York Central Railway, Rochester, N. Y.

Bulletin on Satsuma **Oranges**

GATSUMA Oranges in Northern and Western Florida" is the title of a new bulletin issued by the University of Florida, Gainesville, Fla. H. G. Clayton, the author. has made a thorough study of Satsuma orange growing for several years. The bulletin gives information on the selection of a site, setting the trees, cultivation and fertilization, insect and disease control, packing and shipping, and other aspects of the industry. Those interested in the bulletin may obtain a copy by writing to letin may obtain a copy by writing to the Extension Division, University of Florida, Gainesville, Fla.

BULLETIN 416, entitled "Agricultural Production and Marketing in Atlantic County, New Jersey," is the result of a recent survey. After discussing the Atlantic City market and the important industries of the country, the bulletin gives an account of the production and marketing of each important cron grown. Recommendaimportant crop grown. Recommendations are made in each case. Copies may be obtained from the Agricultural Experiment Station. New Brunswick, N. J.

Alwise investment Now Better than ever before

Dodge Brothers, Inc. have announced astonishingly low new prices.

They have announced important refinements in their product. Always building an exceptional car, they are now building better than

Better in many ways—in beauty, comfort, driving vision, engine smoothness, snap, elasticity, and getaway.

The simultaneous offering of lower prices and vital improvements is made possible

by a gigantic expansion of buildings and equipment.

Ten million dollars so invested permit great savings through vastly increased volume and efficiency.

Part of these savings goes into further betterment of the car. The other part goes directly back to the buyer-in the form of a price reduction that staggered the industry.

Those who chose Dodge Brothers Motor Car in the past invested their money wisely. Today they invest more wisely than ever before.

			Old Price	New Price	Old Price New Price
Touring Car -	-	-	* 875	* 795	Coupe * 960 * 845
Roadster		-	855	795	Panel Commercial Car 960 885
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Special Type-A	Sed	lan	1280	1075	Chassis 730 655
				F. O. B.	Detroit

DODGE BROTHERS, INC. DETROIT
DODGE BROTHERS (CANADA) LIMITED
TORONTO, ONTARIO

Dodge Brothers MOTOR CARS



"CITRUS PECTIN" is the title of Department of Agriculture Bulletin No. 1323. It was written by H. D. Poore following an investigation of the possibilities of manufacturing pectin from low grade citrus fruits. Heretofore the principal source of commercial pectin has been from apple pomace from vinegar factories. Mr. Poore believes that the lower grade citrus products offer excellent opportunities for the manufacture of this product. The bulletin makes suggestions as to commercial production of pectin from citrus fruits.

propagating material from Wisconsin. Illinois. Missouri. Arkansas, Mississippi and the area east of these states. The object of the quarantine is to prevent the introduction of the oriental peach moth into the peach growing sections of Canada.

Shippers of peaches and peach products into Canada from states west of

Shippers of peaches and peach products into Canada from states west of those named must furnish a certificate showing the point of origin. If the shipment is not accompanied by a statement of this kind, it will not be released by the Canadian customs officers.

While the embargo is placed solely with the oriental peach moth in mind.

THE CANADIAN government has according to Canadian authorities, it is expected also to improve the marportation of fresh peaches, peach trees, peach pits and other peach growers, particularly in the Niagara

district of Ontario, where large quantities of peaches are grown. The California crop still has the freedom of Canadian markets, it is true, but a large part of this production is canned, and furthermore, the California peaches ripen early in the season and offer practically no competition to Canadian peaches.

Jones, entering the street car. stepped on a young lady's toe. "Clumsy wretch!" she exclaimed, with an annihilating look.
"I beg your pardon," said Jones: "if you'd had feet big enough to be seen they wouldn't be stepped on." Then the young lady smiled benignly and moved along for him to sit down.—Current Tonics. -Current Topics.



The Market's Greatest Examples of Value-Giving

In far finer performance, in looks, in rugged construction and in thorough quality, these Nash Special Six, Advanced Six, and Ajax models—at their attractively low prices—are easily the value-leaders of their respective fields.

There are nowhere cars at a like price to match them in smooth, quiet performance, in trigger-quick getaway, in pulling power thru heavy going, or in supremely capable roadability thruout the full range of speed and power. And they are roomy, comfortable cars. For Nash has exerted particular care in creating a body design that provides the maximum amount of seat space and leg room for all five passengers.

The fittings and appointments are of choice character and included, at no extra cost, among the major features of all Nash-Ajax models are 4-wheel brakes, full balloon tires and five disc wheels.

There are sixteen models included in the Nash-Ajax lineand prices f.o.b. factory extend from \$865 to \$2090.

(3087)

Fruit Growing in South Africa

THE LARGEST single orange grove in the world is located in South Africa, where citrus production has been increasing rapidly in recent years. It is now estimated that South Africa will be exporting about 7,000,000 boxes of oranges annually by the year 1930.

In 1911, there were a total of 985,601 orange trees under cultivation.
This number has been increased by
1,610,990 trees since that time. Most

This number has been increased by 1,610,990 trees since that time. Most of these trees were grafted.

South Africa not only grows citrus fruits readily, but it also produces a number of other fruits to perfection, including apples, apricots, avocados, bananas, cherries, gooseberries, figs, pineapples, plums, quinces, melons, olives and peaches.

South Africa has an advantage as

South Africa has an advantage as a fruit exporting country in that its products reach the British and American markets in the off season. One of the obstacles to development has been the heavy spoilage during shipment. As a result of the development of Improved refrigeration on the steamers, this loss has been reduced to negligible proportions. Co-operative marketing and improved shipping facilities are causing a rapid development of fruit growing in South Africa.

Michigan Soil Circulars

THE MICHIGAN State College has issued a series of circulars on soil problems of various counties in the state. The authors are M. M. McCool and J. O. Veatch. Circulars have been

issued for several counties in the fruit section of western Michigan. Fruit growers interested in soil problems should write to the experiment station for the circular covering their county. The circulars contain maps showing the location of the various types of soil.

Cross Pollination of the Windsor Variety

PROPER cross pollination is necessary for successful sweet cherry production in the Hudson Valley section, according to the New York State Agricultural Experiment Station. In a solid block of Windsor cherry trees, the set of fruit in a row adjoining a row of Black Tartarian was over 47 per cent, while in the second row of Windsors it was 25 per cent, in the fourth row a little over 24 per cent, in the seventh row 21 per cent, in the ninth row 23 per cent, and in the tenth row 25 per cent. These figures show that the Black Tartarian pollen was effective for only about one row, indicating that the Black Tartarian should be interplanted in about every third row with the Windsors. Hand pollination of Windsors with Black Tartarian pollen gave over 50 per cent of a set in whatever part of the orchard it was tried.

In the orchard in which this observation was made, cross pollination doubled the yield. In other words, an orchard of half the size would have produced just as much fruit with proper cross pollination and with approximately half the outlay of labor and expense.

As an emergency measure, the station is planning this spring to cut blossoming branches from varieties suitable for cross pollination and to distribute these branches about in Windsor orchards in pails of water. It is hoped that by this means an increased amount of cross pollination will be obtained

Dr. Bailey Elected President

D R. L. H. BAILEY, former dean of the New York (Cornell) College of Agriculture, was elected President of the American Association for the Advancement of Science at its recent annual meeting. This is the highest honor the scientific men of the country can bestow on one of their number. Dr. Bailey's long experience as teacher, investigator, author, editor and executive make him fully deserving of this honor.

DURING the year ending June 30, 1925, 19 companies or firms operating 23 manufacturing plants reported the production of 19,911,262 pounds of calcium arsenate, 13,865,482 pounds of lead arsenate and 3,544,887 pounds of Paris green, according to the United States Department of Commerce. The production from these plants represented approximately 70 per cent of the total production for the year, in the belief of department officials.

Most of the calcium arsenate is sold in 100-pound and 25-pound containers. Most of the lead arsenate is sold in 100-pound and four-pound containers. Most of the Paris green is sold in 100-

pound, 14-pound and one-pound containers.

A RECENT article in the *Iron Age* points out that in 1860 there were 651 people for every 100 farm workers, in 1910 there were 727 people for every 100 farm workers, and in 1920 there were 966 people for each 100 farm workers.

in 1920 there were 966 people for each 100 farm workers.

These figures show clearly how the use of improved methods and improved machinery has increased the amounts of food which each farm worker can produce on the average. There were 2,000,000 less farm workers in 1920 than in 1910, yet the production of food was greater in 1920 than in 1910.

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American Fruit Grower Magazine: Just a line to tell you that I am more than pleased with your magazine, which I receive and read regularly. It is certainly a wonderful paper. I receive some very valuable information from it, and I congratulate you on your success.—J. L., Massachusetts.

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Propagation of Fruit Plants

(Continued from page 10)

Dwarf Apples

Dwarf Apples

Dwarf apples are not grown extensively in America but occasionally there are growers who are interested in them. They are propagated either on Paradise or Doucin stock, both of which are imported from European countries. The Paradise has a greater dwarfing effect than the Doucin. Both of these stocks are lacking in hardiness for the most northern districts, but are satisfactory for the great majority of the apple districts of North America. Ordinary varieties of apples Ordinary varieties of apples America. may be either budded or crown grafted on these stocks, probably the most common method being budding. The common method being budding. The Siberian crab is supposed to have a tendency to dwarf to some degree, the variety which is worked on it. The experience of the writer leads him to believe that there is a great variation in stock of this crab and that some of its seedlings exercise a dwarf-ing effect, whereas others give trees of standard size.

Pear Propagation

Most of the pears propagated in Most of the pears propagated in America are grown on French pear seedling stock, and practically all of them are grown by budding. For this purpose the stock is handled in exactly the same manner as is indicated for apples. It is possible to grow pears by root grafting, but for some reason or other, this practice is not widespread. Pyrus ussuriensis seedlings are beginning to be used in a limited way spread. Pyrus ussuriensis seedlings are beginning to be used in a limited way where hardier rootstocks are desired. This is an Asiatic pear and is usually somewhat hardier than the French pear seedlings. It is also supposed to be somewhat more blight resistant. It should be pointed out, however, that both its resistance to blight and its hardiness to cold vary tremendously and that one cannot be sure, that commercial Pyrus ussuriensis seedlings ously and that one cannot be sure, that commercial Pyrus ussuriensis seedlings will demonstrate either of these two good qualities. If one desired to propagate pears, especially for the colder districts, probably the safest thing to do at the present time would be to piece root graft them on roots of be to piece root graft them on roots of Pyrus ussuriensis.

Dwarf Pears

A great many pears were formerly grown as dwarfs, both for home and commercial use. While the practice seems to be less popular than was formerly the case, there is still a considerable interest in dwarf pears. siderable interest in dwarf pears.
These are grown on stock of the Anger's quince. This is seedling stock imported from Europe. The pear unites readily with this quince root

calities. (Directions for budding were and makes a very nice growth in the given in Part II.)

and makes a very nice growth in the nursery. The result, however, is a tree of dwarfed stature, since the quince root is apparently unable to furnish sufficient nourishment to the pear top to produce and support a large tree. These trees are always propagated by means of budding. If the piece root graft is used, the pear scion would be very apt to strike root and in a short while would be growing entirely on its own roots, developing thereby into a standard tree.

Quinces

The quince is a fruit which was greatly esteemed in ancient days, but has fallen into disrepute in modern times. Probably less has been writ-ten about methods of culture and the ten about methods of culture and the propagation of the quince than of any other cultivated fruit. It is propagated in this country pretty largely by budding at the present time. Seedlings of the Anger's quince stock make an excellent stock on which to bud this fruit. The budding operations are exactly the same as for apples. The bud has to grow two years before a branched tree is ready for digging and planting in the orchard. It may also be propagated by root grafting, but this process is seldom made use of.

of.

Until about 25 years ago a common method of propagating the quince in America was by means of mound layering. Quince trees were headed very low so as to grow in bush form and were repeatedly cut back nearly to the ground. This gave a thick growth of luxuriant shoots early in the spring. The mound of earth was thrown about these rapidly growing the spring. The mound of earth was thrown about these rapidly growing shoots. They readily struck root into this soil and in the fall, with the mound removed, each rooted shoot could be cut away, packed in the nursery cellar and in the following spring lived out in the nursery row for furery cellar and in the following spring lined out in the nursery row for further growth. At the same time the original parent tree would again produce a new crop of shoots for further mound layering operations. This method is somewhat laborious and is slower than using seedlings which may be budded. It, of course, produces a quince on its own roots. Whether this is an advantage or not may be a question. One apparent advantage to this is an advantage or not may be a question. One apparent advantage to the small grower would be derived from the fact that any sprouts which might grow from the roots of such a tree could be transplanted into the orchard or nursery row and would most assuredly come true to the type of the parent tree.

In the next issue the propagation of stone fruits will be discussed.

stone fruits will be discussed

The Honeybee as an Aid in Fruit Growing

(Continued from page 12)

esting; the honey produced will be profitable; and the time required to care for the bees will be a compara-tively small item. Most of the work tively small item. Most of the work of caring for them can be done when other work is not rushing. Just how many colonies should be maintained is difficult to answer, because there would likely be different requirements in different localities. It is generally believed that the orchardist should have not less than one colony to 50 trees to secure best results.

Orchardists Should Protect the Honeybee

Orchardists should take precau-tions that they do not poison their friends, the bees, with the poison sprays used to fight insects. There is a real danger of poisoning bees if fruit trees are sprayed when in bloom, or if the spray is applied sufficiently to drop onto nectar-producing cover crops. To show that this danger is to drop onto nectal producting to the fact that a careful survey in the state of Washington showed that the money loss for a season amounted to more than \$50,000 in that state, and this included only the loss of the bees.

There was the additional loss of fruit due to the reduction in the number of these essential pollinizing agents. Orchardists should not spray when

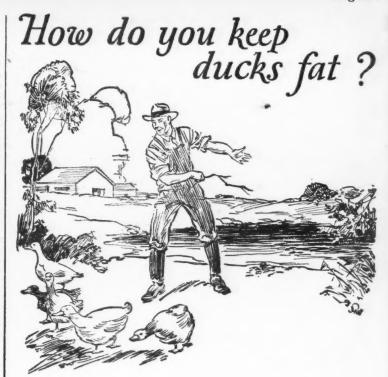
the trees are in full bloom and should not apply the calyx spray until fully 80 per cent of the blossoms have dropped their petals, all of which is consistent with the best spraying practices.

From a study of all available experiments and from numerous observa-tions we must conclude that the inents and from numerous observa-tions we must conclude that the honeybee remains one of the most de-pendable factors in successful cross pollination, and is the one agency which removes the largest element of chance in the production of better and larger crops of fruit.

Mr. O'Brien was having heavy going on a slippery pavement in the days before prohibition. He slipped and sat down with force right in front of a judge who happened to know

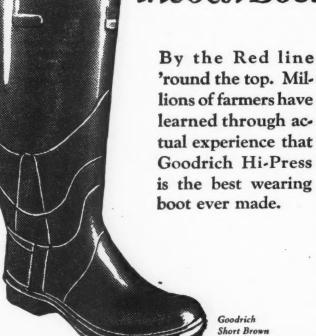
him.
"O'Brien," said the Judge, "sinners

stand on slippery ground."
"So I see. Judge." answered O'Brien.
"But it's more than I can do."— Chicago Herald and Examiner.



All you wise poultry farmers know. You keep them away from water all you can, otherwise they would swim off the best part of their weight.

and how do you tell the best Boot?



Goodrich

THE B. F. GOODRICH RUBBER COMPANY, Akron, Ohio

m e. k-



"Bright Lights" on the Farm



The General Electric Company makes MAZDA lamps for all mazdalamps for all uses; the generators that supply the power; the apparatus for controlling and transmitting it over great distances; and the materials for materials for installing electric service in homes, on farms, in factories, on streets and highWhy not?

Lights that fill the rooms with cheer and make guests welcome-the best entertainment by radio-a "bite to eat" from a glowing grill -all these things electricity can bring to youth on the farm.

And others more important. It will take the drudgery out of work, and make farming more profitable.

GENERAL ELECTRIC



Beautiful Gladiolus

Ground Almonds



APPLE TREES

ppie Trees 2 year, 5-7 ft. \$4.25. 10 Spires All Prepaid. FREE PRACTICAL BLUE r it be the small hungalow of late. or several seasons. CATALOGUE FREE on which you can prepare your sketch and in designing your plan. WE PAY ALL TRANS ANYWHERE.





By HAZEL BURSELL



Boys' and Girls' Clubs

DO YOU know what the Boys' and (at least we wouldn't expect them Girls' Club movement is and what to).

Mothers and fathers of farm boys and girls are, or should be, greatly interested in this nation-wide movement for the training and development of future good citizens. Parents whose children are already enrolled should give them every aid and encouragement. If the work has not been started in their community, someone with organizing ability should write the the state college or university exto the state college or university extension department for detailed information on the formation of the boys' and girls' clubs.

Many Projects Offered

Briefly, groups of boys and girls in the community band themselves to-gether for one season for the com-pletion of the particular "project" in which they have greatest interest. They may choose from a long list of They may choose from a long list of projects, such as fruit growing, dairying, pig raising, sheep raising, calf raising, poultry raising, gardening, manual arts or handlerafts, canning, baking, sewing, home beautification and many others of equal interest and value. They organize a club with regular officers and an adult club advisor. Then there are county club leaders and one state leader with a visor. Then there are county club leaders and one state leader with a corps of assistants in most states. The United States Department of Agriculture and the state college extension services co-operate in organizing and carrying on the work in the various states.

Each member of the club will have his own pig or calf, or sheep or car-

his own pig, or calf, or sheep, or gar-den plot, or section of orchard with which to work out his chosen projwhich to work out his chosen project. In many of the livestock regions bankers have arranged to loan youngsters the money with which to purchase pure bred stock, the money to be paid back on the completion of the project, or when earned. Each member will receive thorough instructions in the most approved methods for carrying out his particular project from the United States Department for carrying out his particular project from the United States Department of Agriculture and from college bulletins and circulars. He is to keep detailed and accurate records of his time, all expenses and receipts, weight gains and other changes. He vies with the other members of the club to make his orchard plot most profitable, his pig gain the fastest at the smallest cost, or his calf grow into the most perfect cow. The club also sponsors stock judging teams into the most perfect cow. The club also sponsors stock judging teams which compete at county and state fairs and national shows. He will learn to score livestock correctly.

Girls Enter All Projects

Girls as well as boys enter the live-stock, horticulture, poultry and gar-dening clubs. And for that matter we find boys in the sewing, baking and canning clubs. One canning team which won national honors during the war period consisted of one boy and two girls, and the boy was the real leader of the team!

leader of the team!

Various problems must be completed by those entering the household projects, which include baking, canning and sewing. Baking club girls will have lessons in bread baking, cake baking, biscuit baking, etc. The sewing girls will learn to darn a stocking ever so neatly, and to make lingerie, dresses and many other things. Canning girls will learn to make preserves, pickles and jellies and to can everything, whether fruit, meat or vegetable. And their products look and taste wonderfully and never spoil

At the end of the season in the fall of the year, each club member has his (or her) neatly written reports and his fat porker, trio of fine chickens, well-fed calf, dairy cow, sheep, fruit exhibit from his orchard, vegetables from his garden plot, loaf of bread, cake, canned fruit or dress which he (or she) will exhibit first at which he (or she) will exhibit first at the county fair and then at the state fair. The reports and products will be scored and the boys and girls receiving the highest scores in their particular projects will be declared state winners. They receive various badges and ribbons, and best of all, worth while trips with all expenses paid to the state conege summer session for two weeks, to world fairs, to Washington, D. C., or to other places of equal interest.

750,000 to Enroll in 1926

More than 600,000 boys and girls in the United States, between the ages of nine and 18 years, enrolled for and completed their club projects each year during 1924 and 1925, and three quarters of a million young people are expected to complete their work are expected to complete their work this year. Just think what a big thing it is when 750,000 young people from every state in the Union band themselves together in such worth while

Last year for the first time a national competition was held, when the grand champions in each club project were named. More than 1200 boys and girls, each a winner in his or her particular propect in one of the her particular propect in one of the 48 states, competed for final honors at Chicago. The national champions were rewarded with loving cups, watches and other prizes. Then judges selected the most perfect boy and the most perfect girl from the standpoint of health and physical proportion.

Many Benefits Noted

But prizes represent a small part of the benefits derived from participa-tion in club work. Young people will want to stay on the farm when they find the work interesting and learn how to make it a financial success. They are taught the newest and best methods for the different phases of farm work through their club projects, and thus the foundation for later success is laid. They will take a real interest in all farm problems and may be a great help in solving some of their parents' problems. They gain an incentive for further study and training which usually leads to a college education. They learn leader-ship and gain much needed confidence in themselves through work and comin themselves through work and com-petition, and a few gifted leaders and organizers are what the farmers need right now! They learn to work to-gether in harmony, and this training should later enable them to make a real success of co-operative associa-tions.

Ye Editor knows whereof she speaks—she comes of a club work family. She was twice a state winner in her home state and her two brothers were state champions in their chosen projects a few years ago. She went to college and was graduated with honors in home economics with a journalism major, and both brothers will graduate this June, one in agriculture with a major in horticulture and the other in logging engineering. The writer wants to say right here and now, for all the world to read, that club work is the biggest thing

learned leadershi No clu a fine, up he lives the sloga

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C Wipe an small balls ter. Marin let stand

No club workers' Motto

No club worker could fail to become a fine, upstanding successful citizen if he lives up to the "4 H Club" motto—the slogan of all club workers. The "4 H's" stand for the equal development of the hand, head, health and home. And occasionally a fifth "H" is added for happiness. All club workers who complete their project are given "4 H" badges, and state winners receive "5 H" pins. The symbol of the club work movement is a green four-leaf clover with an "H" in each of the four leaf sections.

Wouldn't you like your sons and

Wouldn't you like your sons and daughters to have the privilege of wearing the "4 H" badge with all that it stands for? Then, urge them to enroll at once for the project in which they have greatest interest. Now's the time!

Now's the time!

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Have Fewer Dust Catchers

THIS year when we are in the threes of spring housecleaning, why not get rid of the too-numerous small knick-knacks that have accumuwhy not get rid of the too-numerous lovely colors would be so much more small kinick-knacks that have accumulated on the piano, mantel and tables and serve merely as dust catchers in our homes? And while we're at it we might as well carry off to the attic those terrible almost-life-size, gilt-more expensive pictures.

that ever happened to her and her brothers.

And this is only one family! There are thousands of other similar cases that might be cited should space permit. Our college now has a "4 H Club" of more than 50 members, with the number increasing year by year, composed entirely of former club workers. And most of the members are outstanding among the student body of 4000 for scholarship and prominence in student activities. They learned the qualities that make for leadership while in club work.

Club Workers' Motto

No club worker could fail to become a fine, upstanding successful citizen if he lives up to the "4 H Club" motto—

Start a Curio Room

Start a Curio Room

We don't expect to throw away anything worth while. But our homes will be much more charming and inviting-looking, as well as more easily kept bright and shining, if we keep the living room free from little, useless bric-a-brac of every description. We can choose the ones which really have some sentimental value and set aside a curio room in the house, if we must have them on display, or they aside a curio room in the nouse, if we must have them on display, or they may be neatly packed and stored in the attic. One or two beautifully colored and proportioned vases, a pair of candlesticks and a pair of book ends are about the only small articles needed in the living room. needed in the living room.

Then, if we really must have those

portraits before our eyes, we can hang them in our bedrooms—that's where personal things like photographs belong anyway. But a few smaller pictures on suitable subjects and in lovely colors would be so much more appropriate for the living room. Even

Recipes for Spring Salads

ONE OF the first sure signs of spring is manifested by the natural craving on the part of the human race for green things to eat. The person does not live who fails to look forward to the first rhubarb pie, crisp red radishes, tender green onions, and tasty, colorful salads! These are true harbingers of spring, just as are jonquils, dandelions and crocuses. In no way can this craving for green things be satisfied more completely and with greater variety than through salads. They are made out of every known fruit or vegetable in an endless number of flavor and color combinations. Space permits the use of only a few here: of only a few here:

Combination Vegetable Salad I

Shredded lettuce, diced celery, cooked carrots and radishes, onion cut very fine and bits of cheese form one good combination. The cheese adds color and flavor. Chopped sweet pickles add a delightful flavor to any vegetable combination. Cooked beets cut fine may be used in the place of carrots. Arrange for individual service on crisp, curling lettuce or cabbage leaves. Season with salt, pepper, sugar and vinegar, or mayonnaise or boiled dressing.

Combination Vegetable Salad II

Combination Vegetable Salad II
Empty can of string beans or peas in pan and boil for 10 minutes (precaution against possible botulinus poisoning). Cool completely. Marinate beans or peas in boiled dressing or a little vinegar for 30 minutes before mixing with other salad ingredients. Combine with celery, radishes, onlons, bits of cheese, sweet pickle or any other suitable vegetable at hand. Salad greens should always be cool and crisp. Pimento, finely chopped, may be added for color. Any good, tart dressing is suitable.

Cabbage and Beet Salad
Combine shredded cabbage with chopped, pickled beets, celery and a very little onion or onion juice for flavor. Serve family style in a bowl attractively garnished or on individual plates.

Shamrock Salad

Shamrock Salad

Cut off the stem end from a nicely shaped sweet green pepper and remove seed center. Grate cheese into a small quantity of mayonnaise or boiled dressing until a stiff mixture is formed. Stuff pepper with cheese and set in coid place for several hours before serving. Slice with sharp knife and arrange on crisp lettuce leaves, three slices to the serving, with a spoonful of mayonnaise where the slices come together. Garnish with a strip of red pimento across each slice.

Cheese and Apple Salad

Cheese and Apple Salad
Wipe and pare apples and shape into small balls with a French vegetable cutter. Marinate with French dressing and let stand until chilled. Mash a cream cheese and add Worcestershire sauce, salt and chopped canned pimento to taste. Shape into balls, same size as apple balls, having half as many. Cottage cheese may be used for cheese balls. Arrange on bed

of lettuce leaves with a ripe olive center for each plate. Serve with French dressing or mayonnaise.

Peanut Salad

Peanut Salad

Shell, skin and chop 1 pt. peanuts; there should be ½ c. Add 1 c. finely cut celery (chilled and drained). Marinate with French dressing. Wipe sweet peppers, cut in halves lengthwise, and remove seeds. Arrange peppers on lettuce leaves and fill with prepared mixture. Garnish top of each serving with thin slices of radish overlapping one another.

Celery and Cabbage Salad

Remove outside leaves from a small, solid white cabbage and cut off stalk close to leaves. Cut out center and shred center with sharp knife. Let stand I hour in cold or ice water. Drain, wring in double cheesecloth, to make as dry as possible. Mix with equal parts of celery cut in small pieces. Moisten with cream dressing and refill cabbage. Arrange on folded napkin and garnish with celery tips, parsley sprigs and tulips made from small red radishes.

Asparagus Salad

Asparagus Salad
Drain and rinse stalks of canned asparagus. Cut rings from bright red peppers or pimento 4 inch wide. Place three or four stalks in each ring. Arrange on lettuce leaves and serve with mayonnaise seasoned with horse radish sauce.

Boiled Dressing

Bolled Dressing

1. T. flour
1. T. sugar
1. S. c. milk
2. S. c.

Table of Abbreviations

Table of Addreviations

It. equals I teaspoon.
It. equals I tablespoon.
Ic. equals I cupful.
Ipt. equals I pint.
Note.—Recipes for other salad dressings given in May, 1925, issue.



ETTING help at harvest time is a problem for G every farm. That is one reason why the demand for electricity on farms has grown so much.

In Red Wing, Minn., W. A. Cady can harvest his corn much earlier than his neighbors, because he cures it electrically. He has equipment which reduces the handling of grain before it is ready to use as feed, from five operations to one. He has electric milkers, cream separators, pumping and heating equipment and other productive and labor-saving devices.

Experiments in seventeen states are helping to develop machinery which will make electricity profitable to the farmer as well as making life pleasanter for him and his family.

Groups of farmers who are ready to buy the necessary appliances will always find their light and power company ready to cooperate with them in any movement for farm electrification that is economically sound.

NATIONAL ELECTRIC LIGHT ASSOCIATION

The Committee on Relation

of Electricity to Agriculture

is composed of economists and

engineers representing the

U. S. Depts. of Agriculture, Commerce and the Interior,

Amer. Farm Bureau Federation, National Grange,

Amer. Society of Agricul-tural Engineers, Individ-ual Plant Manufacturers, General Federation of

Women's Clubs, American

Home Economics Ass'n., National Ass'n of Farm EquipmentManufacturers, and the National Electric

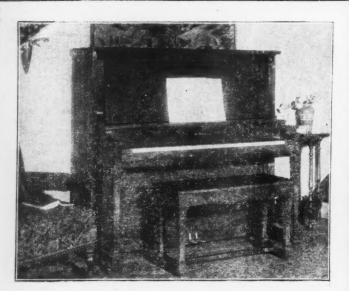
Light Association.

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American Steel & Wire Company

Variety Selection for the Roadside Market

(Continued from page 4)

mosaic disease of the plants. Some varieties are less susceptible than others to this trouble. The red va-rieties named below have been found to be partly resistant or to contract the disease slowly:

June Herbert

Ontario Cuthbert Latham

For black raspberries, Black Pearl, Cumberland, Plum Farmer and Gregg are suggested as being best suited for the roadside market. The Columbian among the purple varieties and the Ranere and Erskine Park among the everbearing raspberries complete the list for the raspberries.

There now remains only the black-berry and of this fruit there are sev-eral excellent cultivated sorts which would add materially to the variety and attractiveness of the fruit display on the roadside stand. Seven kinds are recommended particularly for this purpose, including

Kittatinny Rathbun Snyder Taylor

One dewberry, Lucretia. is worthy a place in the small fruit planting, either for home consumption or for the roadside trade.

the roadside trade.

Practically all of the fruits named in these lists, both tree and small fruits, may be easily procured from any reliable nursery. A few are rather recent introductions and may rather recent introductions and may not yet be in the hands of commercial dealers. These include Early McIntosh, Cortland and Red Spy among the apples; the Portland, Sheridan and Outario grapes; and the Hunter nectarine. A limited quantity of stock of some of these may sometimes be obtained from the New York State Fruit Testing Co-operative Association at Geneva, where the varieties are being propagated for distribution. rieties ar tribution.

Rambles of a Horticulturist

(Continued from page 10)

time will come when there will be no surplus, and the people will go hungry and half clothed. Economic stability along all lines is appreciably affected along all lines is appreciably affected by fluctuations in the yield of agricul-tural products. For the good of the farmer, of the public and of the coun-try in general, we must contrive some method by which surpluses will be-come a blessing and not a burden to food producers.

Endorses Dickinson Bill

Mr. Lowden endorsed the general principles of the Dickinson bill. This bill provides for the setting up of a farm board which would co-operate with farmers and co-operatives in with farmers and co-operatives in handling surplus products. Under this plan grower controlled corporations would be created. The federal board would declare an operation period to exist at such times as a surplus of any product appeared to be in prospect. The surplus would be handled in a manner that would not break domestic prices and would be sold in the most practicable manner, at home or abroad. The losses on the surplus products, if any, would be made up by an equalization fee which would be paid by all growers made up by an equalization fee which would be paid by all growers of that product. Mr. Lowden delivered his speech

extemporaneously, referring only to notes for statistics. He made a great speech and was frequently and vigor-ously applauded. The hundreds of farmers in attendance appeared to be solidly behind him in the viewpoint he expressed of the condition of agriculture in general and in the plan of solution which he proposed.

"Those revernooers are certainly strict on incoming vessels." "What's happened now?" "Here's a story of a ship captain being arrested as he was making heing

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there are no dull evenings with Kurtzmann Player Piano in the ouse. Every member of the ousehold then becomes a talent-1 pianist and can play whatever usic is preferred.

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The Business of Growing

(Continued from page 3)

stands between him and failure. No business man, however able he may be, can year in and year out market an inferior product and get away with

In marketing I have always found that sales f. o. b. are by far the best. In order to do that you must establish confidence in your pack and have connections with reliable buyers. Then you must know the general marketing conditions and the peculiarities of the different markets for different variedifferent markets for different varie-ties. You must never send Grimes Golden to New York, but New York is the best market for York Imperials of good quality. In 1924, Chicago paid the highest price for Jonathans; Philadelphia paid the highest price for Stayman Winesaps; and the Lowry is sold to the best advantage in Richmond and Birmingham. I have always found that it was better to sell the varieties in season. In other words, I think that over a term of years you should sell the fall and sum-mer varieties out of the orchard and mer varieties out of the orchard and not store them. There may occasionally be a year when you will make more money storing Jonathans and Grimes Goldens, but over a period of years you will make more money by promptly placing them on the market.

With the winter varieties, such as Stayman Winesaps and Yorks, it is a matter of discretion as to storing or selling. I try to sell a part and store a part, and in that way divide the risks. The late-keeping varieties, such risks. The late-keeping varieties, such as Winesaps and Pippins, should be stored and sold in season. Ben Davis can often be sold for export to South America and Cuba early in the

Standardization

I believe the competition of the future is between the barreled apple sections and the boxed apple sections of the Pacific Northwest. I believe that every barrel of inferior and mis-branded apples placed on the market is a direct blow to the whole barreled apple industry. When a man buys a box of western apples he knows about what he is getting before he sees it. When a man buys a barrel of apples, frequently no one, including the grower, knows what is in that barrel. Under these conditions it is no won-der that the western standardized pack has taken our markets. The

pack has taken our markets. The wonder is that we are able to sell barreled apples at all.

I think everyone will agree that we must standardize. In my opinion, the barreled sections that do not standardize will ultimately be driven out of the apple business and will do great injury to the sections that do enforce standards. We have made a great step forward in Virginia by the passage of a voluntary standardization law and by providing state inspection at a small cost per barrel. Any grower in Virginia can now have his apples inspected by an official inhis apples inspected by an official inspector as they are packed and have the official state stamp on each package. As standards, we have adopted the United States standard grades.

Advertising

There is a great field for advertising the apple, and I urge every apple grower to join in any sound concerted movement for advertising apples, to the best of his ability. If we could conduct a nation-wide advertising campaign, bringing to the attention of the public the wonderful health-giving qualities of the apple and the fact that it is a great natural medicine, we would so greatly increase the consumption of apples as to largely overcome any danger of over-production. Such an advertising campaign should be conducted by the united action of the growers throughout the United States, without mention of any particular section or variety, but emphasizing the wholesome and medicinal value of the apple. The cost of such a campaign would be inconsequential to each grower. One cent There is a great field for advertis-

by building being

per barrel would amount to over a quarter of a million dollars, and a prudent expenditure of this sum would bring in returns of incalculable value to the apple industry.

Conclusion

I might say in conclusion that the average apple grower is too prone to blame his failures on hard luck rather blame his failures on hard luck rather than on bad management. The only way to profit by mistakes of the past is to recognize them as mistakes and not attempt to escape responsibility by resting the blame on an unkind providence. Apple growing is no more hazardous than many other lines of business, and certainly few other lines of endeavor hold out the rich

reward in both profit and personal satisfaction that the apple business gives to those who succeed.

Dusting for Apple Aphids

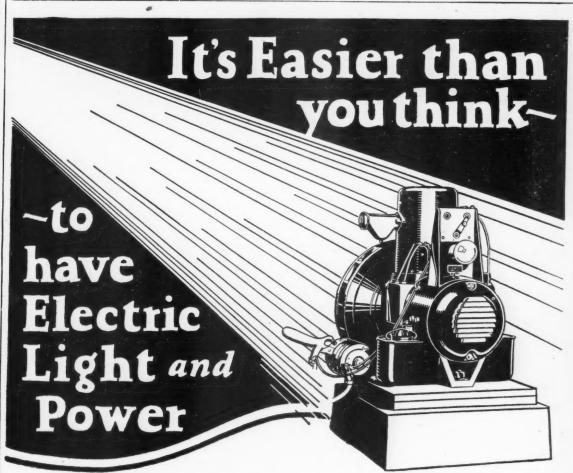
THE NEW YORK Agricultural Experiment Station has obtained the best results in treating apple aphids by using nicotine dusts when the by using nicotine dusts when the more advanced blossom clusters show pink, Sufficient dust should be used to coat the leaf and blossom buds. This treatment brought about a striking reduction in the amount of aphis-injured apples in all of the orbards under experiment according chards under experiment, according to station entomologists, who have re-

cently issued a report on the work of

the past year.

In addition to using sufficient material and applying it at the time above stated, other conditions which favor effective control are fairly high temperature, freedom of the foliage from moisture, and a quiet air at the from moisture, and a quiet air at the time of application. Applications of dust made later in the season have invariably proved ineffective for aphids, according to the station.

Professor: "Young man, I under-stand you are courting a widow. Has she given you any encouragement."
Y. M.: "I'll say she has. Last night she asked me if I snored."—Columbia.



70U know what Delco-Light would do for your home. You know what a wonderful thing it would be to have plenty of bright, clean, safe electric light—as well as ample electric power for pumping, churning, washing, and other chores.

But do you know how easy it is for you to have all these things? Do you know that for a small down payment you can have this Delco-Light installed in your home-with five beautiful spun brass light fixtureswith all wiring done-and that the total cost, payable in easy installments, is only \$248? (A little more west of the Missis-

Think of it—Delco-Light, in your home, ready to switch on the lights for less than \$250and that payable on easy terms!

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No. 2616—Frock with Side Flare and Novel Neckline. Cut in sizes 16 years, 36, 38, 49, 42, 44 and 46 inches bust measure. Size 36 requires 33, yards of 40-inch mate-rial with 36 yard of 27-inch contrasting.

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FASHION DEPT., AMERICAN FRUIT GROWER MAGAZINE

22 East 18th St., New York, N. Y.

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Engineering for the Fruit Grower

By E. W. Lehmann

A Few Things Seen at the Chicago Automobile Show

IT TAKES years and even a man's lifetime to produce new varieties of apples or improve their quality by breeding, but much is often acby breeding, but much is often accomplished in improving the design and the quality of a machine in a few months. Such has been true of the development of the automobile, as well as the tractor, the truck and other machines used by the farmer. While many beautiful new models were shown at the 1926 Auto Show, the thing that interested me most were the accessories provided to increase the life of the car and to improve its riding qualities.

prove its riding qualities.

An idea that is always uppermost in the mind of the manufacturer is in the mind of the manufacturer is to produce each year a better qual-ity product than the one of the pre-vious year and at the same or less cost. There is little question but that there has been a marked im-provement in the design and quality of automobiles each year during the of automobiles each year during the short period of their development. It can be seen that there is much competition in production as well as in sales, and the better the product is for a certain cost, the less sales competition. Every fruit grower can well seen this principle in mind. The man keep this principle in mind. The man who can produce a high quality prod-uct at as low a price as his neighbor

produces a product of medium quality, will certainly be rewarded.

While there has been some attempt to improve the appearance of the new automobile models by special color schemes and finish, there have been no radical changes in body lines. The idea of a standardized appearing product will reflect to the advantage of the man who is already a car own-er, since the older models will con-tinue in high favor, and in some in-stances the improvements on the new models may be attached to the

d models. One of the new devices that One of the new devices that attracted considerable attention was the oil reclaiming or purifying device. These oil rectifiers or purifiers are standard equipment on a number of cars. It is generally recognized that one of the big problems in automobile operation is proper lubrication. These new devices clean and purify the oil and recirculate it through the lubrication system. Great claims are made for these devices by the automobile manufacturers as to their value in reducing the crank case dilution and in removing all foreign matter, such as road dust, dirt, bits of carbon, etc. The following are some of the advantages pointed out for this type of equipment: It prevents crank case dilution and renders it unnecessary to change oil under 2500 miles. Oil mileage is thereby increased. There is less wear in the motor, and fouling of the spark plugs and carbon formation is prevented. Lighter grades of oil may be used, resulting in better winter lubrication and easier starting. The fact that this grades of oil may be used, resulting in better winter lubrication and easier starting. The fact that this equipment is found on many new models should be of interest to automobile owners in general.

Air cleaners are now generally accepted as standard equipment to keep the road dust out of the automobile engine. Such equipment is especially necessary for tractors, and a number

necessary for tractors, and a number of cleaners have been developed for tractor use. The air cleaners for auto engines are similar in design. Another device found on many of the new model cars is the special positive oiling devices lubricating the entire

chassis from one point.
Safety devices, such as bumpers and locks, are now being tested by the National Underwriters' Laboratories and when these devices carry their stamp of approval, a lower rate of insurance can be secured. It was noted that a number of the bumpers

carry this stamp. Bumpers are more than mere decorative devices, are better made than formerly, and are

For the safety and comfort of the people who ride, better brakes are provided on most cars. Several types provided on most cars. Several types of shock absorbers were also demon-strated to show how they improve the riding qualities of a car over a rough road. A number of the cars are now equipped with such devices as standard equipment.

Implements for Use in the Orchard

IT IS always a problem to avoid barking the tree trunks and tearing the branches when plowing and disking an orchard. This is especially true when the work is done with teams and the ordinary field implements. To solve this problem, some of the manufacturers have given see. ments. To solve this problem, some of the manufacturers have given special attention to the development of orchard implements. When these implements are used with a tractor that may be kept under perfect control when used under trees very little damage is done.

Special plows for orchard use are built very low, without levers extending above the frame, with the axle on the under side of the beams and with a very narrow truck. The entire design is to reduce the barking of the trees to a minimum and make

entire design is to reduce the barking of the trees to a minimum and make it possible to avoid catching limbs in operation. Both moldboard and disk plows may be secured for orchard use. In localities where the soil becomes extremely hard or in localities where there is a sticky gumbo type of soil, the disk type of plow will give better results than the mold board type.

Disk harrows and peg tooth harrows that are designed for orchard use are also on the market. The chief difference in the orchard type and the ordinary type is the low down feature, the elimination of levers standing above the implement and provision to avoid the barking of trees by the wheels or by the frame at the side of the implement. Every fruit grower should take advantage of this recent development in orchard implements when new machines are purchased.

Making Plumbing Repairs

IT HAS been estimated that the money spent on the operating cost of an automobile for one year should keep a plumbing system in repair for a lifetime. This is especially true of a plumbing system that has been properly installed with the pipes placed so there is no danger of freezing and little danger of stopping up due to poor drainage. While it may sometimes be necessary to call in a plumber, usually repair jobs can be easily taken

usually repair jobs can be easily taken care of at home.

To be able to make minor or emergency plumbing repairs saves much trouble, delay and expense. Prompt attention to small repair jobs is necessary to the orderly, smooth running of the household. A leaky faucet or a leaky toilet is not only a nuisance but wastes water and makes additional numning necessary. To be nuisance but wastes water and makes additional pumping necessary. To be able to take care of such repairs in the country is more essential than in town as it is difficult to get a plumber to go to the country, and one does not like to pay for several hours' time for doing a 10-minute job. Methods of making plumbing repairs in the home are explained in Farmers' Bulletin 1460, a recent publication of the United States Departlication of the United States Department of Agriculture.

Worn seat washers, the usual cause of leaking faucets, are roadily re-placed by new ones with the aid of a monkey wrench and screw driver. Clogged water-closet pipes, which or-

of real value in protecting a car against damage.

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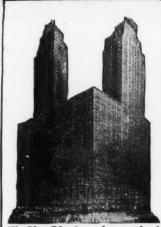
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The New Morrison, when completed, will be the largest and tallest hotel in the world, containing 3,400 rooms

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Chicago Stop at the

MORRISON

Tallest in the World 46 Stories High

Closest in the city to offices, theatres, stores and rail-road depots

Rooms \$2.50 up

all outside, each with bath, running ice water and Servidor

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Take the hardest, stiffest shee—new or old. Apply SEK—shoe becomes delightfully soft and easy—thoroughly waterproof—takes and holds brilliant shine—not oily nor greasy. SEK is not impaired by use or age; is permanent. Can treats 2 pairs men's shoes. Postpaid \$0.50.

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SEK-Reliance Corp. Covington,

dinarily can be unstopped by the householder without expensive tools, sometimes cause serious inconveni-ence and unsanitary conditions besometimes cause serious inconvenience and unsanitary conditions because of delay in getting a plumber. Frozen pipes can usually be thawed out by members of the family. The middle of a frozen pipe, says the bulletin, should never be thawed first, because expansion of the water confined by ice on both sides may burst the pipe. When thawing a water pipe, work toward the supply, opening a faucet to show when the water starts flowing. Applying boiling water or hot cloths to a frozen pipe is a good way to thaw it.

The bulletin also contains numerous illustrations and instructions relative to repairing leaks in pipes, hose and tanks, as to thawing underground or otherwise inaccessible pipes, mending flush valves, cracked laundry tubs, removal of scale from waterbacks and coils, and other similar repair jobs.

Copies of the bulletin may be obtained free, while the supply lasts, from the United States Department of Agriculture, Washington, D. C.

While it is essential to have a thoroughly reliable plumber to install a complete plumbing system in either a country or city house, so that it will meet all requirements from a sanitary

complete plumbing system in either a country or city house, so that it will meet all requirements from a sanitary point of view, there are simple systems that may be installed by the average man without difficulty. A number of the state colleges have published bulletins describing such systems. Copies of bulletins devoted to water and plumbing systems may be obtained by writing your agricultural experiment station.

Treat Your Refrigerator White

White

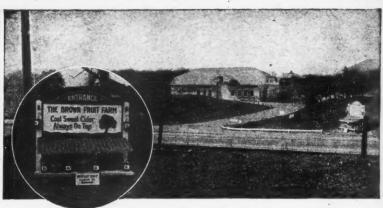
If Your refrigerator or ice box is not now in use, it will be a good time to thoroughly clean it and treat it white with one or two coats of enamel, so it will be ready for use as soon as the weather is warm. First clean it thoroughly both inside and out. To do a good job, take a screw driver and remove all racks, such as usually are found in the ice compartment. The racks and shelves are more easily cleaned and enameled when taken out, and every nook and cranny of the box can then be reached. Before enameling, be sure the interest of the sure of the decrement of the sure of the decrement. cranny of the box can then be reached. Before enameling, be sure the interior of the box is perfectly dry. Best results can be secured by applying the enamel in a warm room that is free from dust. Either apply enamel or a coat of varnish to the outside of the box. If the doors do not fit as tightly as when the box was first bought, this condition can be remedied by removing the catch on the door and putting a piece of paste the door and putting a piece of paste board under it. This will compensate for the wear and make the door shut snug again.

Water Dilution Cream Separator Is Costly

THE FRUIT grower who has a few cows should not make the mistake of using a water dilution cream separator. While the first cost is exceedingly low, it is wasteful and the acingly low, it is wasteful and the actual cost in cream lost is high. With only a few cows, the loss of cream would justify an investment in a first-class centrifugal separator. While there are not many dilution separators in use, there is a great temptation to buy them because of temptation to buy them because of their low cost as compared with the cost of the standard separators. The loss of cream is not the only factor to consider. The dilution separator also reduces the value of the skimmed milk because of the water added to it during the separating process.

Flossie—You'll never catch me again going out to dinner with an editor!

editor!
Her Friend—Why, was he broke?
Flossie—I don't know whether he
was broke or not, but he put a blue
pencil through about half my order!



The Profit Way to Market Under-Grades

CHANGE your undergrade apples into hard-cash dollars! Stop the annual waste of bushels of sound undergrades at next-to-nothing prices. Make your orchard yield big cash returns! For with the Mount Gilead Process of Refining Fruit Juices you can market every bushel from your trees. And you can increase the value of your crop 100%.

The Moant Gilead Process A Scientific Development

The Mount Gilead Process is the greatest improvement ever made in the production of fruit juice products. Developed by experts after years of experiment, it retains all the natural taste and flavor of cider. It keeps cider fresh and sweet for years! No chemicals are used. The juice is not cooked! And this remarkable process complies strictly with all regulations of the Prohibition Laws.

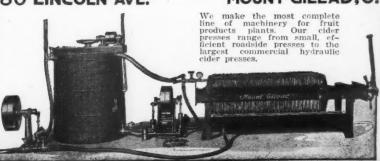
Used By Many Successful Orchardists

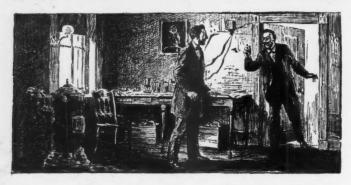
The unqualified success of the Mount Gilead Process has been demonstrated over and over again. In every apple growing section, progressive orchardists are turning to this famous process for greater sales and profits wherever their crop of undergrades amounts to a thousand bushels or over. With its aid they have increased their incomes by thousands of dollars-and have realized big profits from the public's growing demand for pure, sweet apple juice. Complete processing plants furnished at prices ranging from \$1500.00 to \$15,000.00.

Our Book, "A Golden Harvest from Undergrade Apples," Tells the Whole Story

This interesting book on cider making, written by Howard F. Mc-Millin, should be in the hands of every orchardist. It discusses the most important methods of manufacture and marketing apple products and describes the efficient Mount Gilead Process in detail. Write us today to send you a free copy.

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From One Sentence To Millions

On March 10, 1876, a single sentence was heard over the telephone. Now, after half a century, 50,000,000 conversations are heard each day.

"Mr. Watson, come here; I want you," spoken by Alexander Graham Bell, the inventor, was the first sentence.

His first crude instruments had been tested by sounds and single words; the patent had been granted; the principle was established from which a world of telephones has since resulted. But at that time the telephone had not proved its practical usefulness-its power to command.

Bell's words, electrically

transmitted over a wire, brought his assistant from another part of the building. And with his coming, the telephone became a dynamic factor in human affairs.

Since that first call untold millions of sentences have been heard over the telephone. Men have traveled vast distances in answer to its calls. The wheels of great industrial enterprises have turned at its commands. Everything that man can say to man has been carried to a distance over its wires, and the thoughts and actions of nations have been influenced through

AMERICAN TELEPHONE AND TELEGRAPH COMPANY AND ASSOCIATED COMPANIES



IN ITS SEMI-CENTENNIAL YEAR THE BELL SYSTEM LOOKS FOR-WARD TO CONTINUED PROGRESS IN TELEPHONE COMMUNICATION



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Double Your Chick Hatch

Miller's Air Cell Micrometer

Tells you at a glance, day by day, exact condition of eggs in incubator, and what to do; no guessing, guaranteed. Last a lifetime. Price \$2.00 with order, or sent C. O. D.

MILLER MFG. CO., R. D. 3, Box 129, Paterson, New Jersey



Care of Bees in the Spring Insures a Crop in June and July

Your bees will have by this time passed through the most serious part of the winter, and soon there should be days when they can fly, if necessary. In many cases colonies will have started rearing brood.

After the bees are once set out in the spring the most important attentions will depend on its will be will b After the bees are once set out in the spring, the most important attention that the beekeeper can give to them is to see that they have an abundance of stores.

On the first warm day when the bees are flying freely, examine each colony to see that they are queenright and have sufficient stores. If there are not sufficient bees in each

Jorn M. 40

The answer to this question is rather simple, as the number of colonies will depend entirely upon the wishes of the fruit grower and whether or not he intends to handle both the fruit and bees on his place single-handed. If the fruit grower is gardening or growing small fruit, so that it is necessary for him to give his entire time to those lines, it will, of course, be impossible to keep more



A natural apiary site

The home apiary of L. T. Bishop, near Sheboygan, Wis. This is one of the finest locations in America for a beeyard. A high bluff protects the yard on the north and east and the trees protect it on the south and west.

hive to cover four or five frames, then it will be better to unite the weaker colonies with medium colonies in order to secure strong colonies at the beginning of the honey flow. After seeing that the bees have an abundance of stores, be sure and pro-vide plenty of room so that there will

be no let-up in brood-rearing.

If a colony is strong in the spring, there will not be sufficient room in one 10-frame hive body for the maximum amount of brood which such a colony will develop. You should therefore plan, about the first of May, to put on an extra hive body, and if you can add a number of combs of stores in the extra super, you will reyou can add a number of combs of stores in the extra super, you will re-ceive big returns in the added surplus crop. You will also find that this in-crease in room will help a great deal

to keep down swarming.

Young queens not more than a year old, with an abundance of room, are the most important provision that the beekeeper can provide for swarm conbeekeeper can provide for swarm control. Some kind of spring protection around the hive, particularly those unpacked, will be found a great benefit in helping the colony to keep warm and it will permit the colony to spread out and develop more rapidly. A water feeder on top of a hive will save the bees many trips into the field. If the water placed in such a feeder is carefully measured, it will be noted that each colony will take down several gallons during the spring period, in addition to whatever they may gather from the field. A good supply

than a few colonies of bees. How-ever, if the fruit grower can find a few extra days during the spring months and is willing to devote the principal part of his time to the bees during June and July, he should be able to keep from 100 to 200 colonies very successfully and without a great amount of labor. To do this, he must have good equipment and enough of have good equipment and enough of it to take care of the bees at all times. Examples of where fruit growers are examples of where that glowers are quite successful with this number of colonies are common, and the fruit grower needs only the will to do in order to be successful in handling as many bees as he may desire.

Every Fruit Grower A Potential Beekeeper

Nearly every fruit grower, especially those with large commercial orchards, is always on the verge of starting in with bees. The very fact that he has blossoms which he knows contain nectar makes him wish to increase the possible returns from his

holdings.

Knowing that the bees are useful in Anowing that the bees are useful in helping to bring about cross fertilization of the blossoms, naturally there develops from time to time a desire to have bees on the place. There is probably nothing that the fruit grower can do that will be more beneficial to him than to have a few stands of him than to have a few stands of bees near the orchard. We do not know how many bees are necessary to a tree, but in a good strong colony there are probably enough field bees

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during the blooming period to care for from five to 10 trees. Another im-portant factor to which the fruit grower should give careful attention is that honey is also a cash crop and that a honey crop always provides something to fall back on when the fruit crop is short. If the fruit grower is in the habit of peddling his fruits, honey makes a nice side line to sell along with the fruit.

Inspect Each Colony Carefully for Disease

THE GREAT losses caused each season by American and European foulbrood can be prevented to a very large extent by careful inspection of each colony on the part of the beekeeper. If you are not acquainted with either of these diseases, make it a point to visit some other beekeeper, or attend a meeting at which foulbrood is to be discussed and make yourself familiar with the symptoms of both diseases.

During your spring examinations, watch carefully for dead larvae. Wherever disease symptoms are found, cut out a section of the comb and send it in to your state apiary inspector for determination. If it happens to be American foulbrood, then it will be necessary to destroy the

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will be necessary to destroy the combs. However, if it is only European foulbrood, you can prevent decrease in colony strength by combining your colonies to make them stronger and by feeding them extra stores

Unite to Get Strong Colonies of Bees

IT IS useless to expect weak colonies to build up by the beginning of the honey flow, and one strong colony is much better than two or three weak is much better than two or three weak ones. A strong colony of bees is able to build up under adverse conditions in the spring, when small, weak colonies will barely be able to keep going. Weak colonies cannot possibly get strong enough by the time of the honey flow to do anything in the way of gathering a surplus, and usually build up on the honey flow itself.

It is, therefore, quite desirable to unite weak colonies with medium strong colonies to make those colonies strong and, if increase is desired, nuclei can be made from them shortly after the beginning of the honey flow.

after the beginning of the honey flow. Nuclei started at that time will normally build up to good colonies by fall.

Facts About Cement

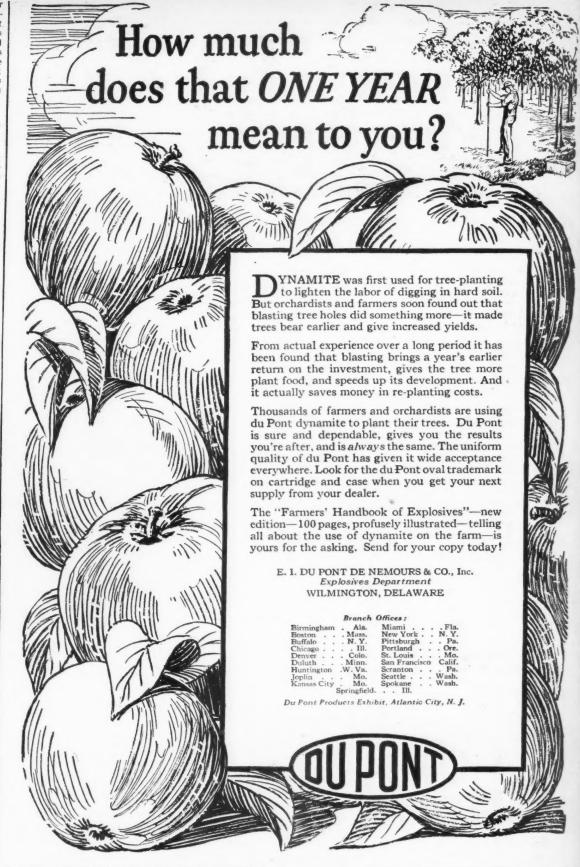
CEMENT was discovered by the Romans, who used it extensively for the foundations of their triumphal arches and temples. Excavations in the Forum clearly show on the concrete, marks of the ancient wooden forms, with a present day concrete the second concrete the seco much as present day concrete shows the same patterns. As with Tyrian purple, the art of cement making was lost when Rome fell before the Van-

But enough information remained so that sometime prior to the American Revolution investigators in various parts of Europe began to make cement of varying qualities in a small way. The first notable use of cement in modern times was in the Edystone Lighthouse off the English coast. This was in 1756. It was also employed in the Eric Canal about 1820.

These cements were much like the Roman variety, which has stood for nearly 2000 years. They were made of materials which nature had already mixed in the proper proportions. But

of materials which nature had already mixed in the proper proportions. But in 1824 an Englishman, Joseph Aspdin, succeeded in making a stronger cement from materials which nature had not already prepared for him. This he called portland cement, because it resembled a durable building stone from the Isle of Portland, used in building Westminster Abbey.

A highly developed form of this early portland cement is the cement of modern commerce, so that the secret of the ancient Romans in this instance has not only been rediscovered but also has been improved upon.





Parcel Post Prepaid:

3 in. noz., 2 to 5 gal. cap. per min. \$2.50
31\(\frac{1}{2}\) in. noz., 5 to 7 gal. cap. per min. 2.75
4 in. noz., 7 to 9 gal. cap. per min. 2.00
41\(\frac{1}{2}\) in. noz., 9 to 12 gal. cap. per min. 3.25

Manufactured only by HENRY P. HANSEN, 1120 S. Madison St., Albert Lea, Minn.



When You Poison Use a Peerless - A real hand Dust Gun

Apply dust insecticide and fungicide with a Peerless Hand Dust Gun and get results.

The load is divided front and rear—equally balanced. Easy to carry and easy to operate.

Fan is ball bearing and the hub is packed in grease. The hopper holds seven pounds and the discharge can be regulated from nothing to twenty pounds per acre. Just the thing for plants, bushes and medium size trees.

Write for name of nearest dealer and mention this paper.

Peerless Dust Gun Co. Cleveland, Ohio 1600 E. 24th St.

Plant Quarantine Act

riculture and forestry. In view of cer-tain misunderstandings with respect to some of the many features of control being exercised under this act, it seems desirable to present a brief statement of its purpose and the broad protective powers under it which are

The main purpose of the act is to rhe main purpose of the act is to prevent, so far as possible, further inroads of foreign insect pests and diseases of plants by controlling or prohibiting the entry of any plant or plant product which may be the vehicle for the introduction of such pests. Aside from certain minor efforts by one or two States, no control over such entry of foreign pests had been exercised prior to 1912, with the result that a veritable stream of new pests was entering this country and becoming established. The large development ing established. The large development in world commerce in plants, fruits, and vegetables during the last 30 years has greatly increased the danger of such introductions of pests. The increasing entry of such products from Asia, Africa, and other remote regions led to the entry of many pests absolutely unknown, and hence impossible to guard against, such as the chestnut blight, citrus canker, Japanese beetle, and oriental fruit worm

blight, citrus canker, Japanese beetle, and oriental fruit worm.

"As illustrating the rate of entry of such enemies, no less than six new major pests gained entry and establishment during the four years immediately preceding 1912. These are the oriental fruit worm, Japanese beetle, citrus canker, potato wart, European corn borer, and camphor scale. These and plant enemies earlier introduced now represent the more important pests of agriculture and forestry in this country and involve annual losses this country and involve annual losses to farm crops which have been conservatively estimated at upward of \$1,000,000,000. Most of these pests are now thoroughly established and widespread in the United States. Some of the more recently introduced ones, however, have still such limited distribution or local foothold as to make it desirable, under any reasonable ex-penditure, to hold them in check and prevent their spread as long as prac-ticable. The importance of such new pests is indicated in some measure by pests is indicated in some measure by the fact that Congress is now making annual appropriations for their con-trol, prevention of spread, and in some instances eradication, of sums totaling upward of \$2,500,000. Such control within the United States of new plant enemies or diseases is the second important object provided for in the act in the act.

"There has been much misrepresenta-tion and misunderstanding relative to tion and misunderstanding temperature the exercise of the admittedly large quarantine and control powers under the act, and the statement, which has been widely circulated, that the exer-cise of such powers is entirely con-

66T HE PLANT quarantine act of trolled by a small independent group 1912 is undoubtedly one of the within the department, has no basis.

To prevent any such individual or gress in the interest of American agarbitrary action, the act provides for arbitrary action, the act provides for an administrative board to be appointed by the Secretary of Agriculture from the personnel of the three important bureaus of the department dealing directly with the farm and forest resources of the Nation. This provision unites the Bureaus of Entomology, Plant Industry, and Forestry as the administrators of the act, advisory to the Secretary. To further safeguard the exercise of these powers the act is proposed in resulting safeguard the exercise of these pow-ers, the act is mandatory in requiring that, prior to the issuance of any quar-antine or restrictive order, a public hearing shall be held at which any per-son interested shall have

son interested shall have opportunity to be heard.

"The need for taking measures—drastic if necessary—to protect American agriculture from the devastation of additional foreign pests and dis-eases is universally admitted. It fol-lows that some competent body must make the determinations with respect. to the necessary restrictions and safe-guards. Congress has placed that responsibility on the United States Department of Agriculture. Certainly this department, with its hundreds of spedepartment, with its hundreds of specialists in the fields of plant production, insect enemies, and diseases of plants, would seem to be the proper agency for making such decisions.

"Before adopting the present general policy of restricting the entry of foreign plants to horticultural, educational, and scientific needs, the department gave seven years, trial to the

ment gave seven years' trial to the system of unlimited entry under for-eign inspection and certification, with eign inspection and certification, with such re-examination of the imported material as was possible at destination in the United States. That this sys-tem was fairly tried out there is no question, and its failure was clearly in-dicated by the startling record of pest interceptions with such imported ma-terial, and still more by the realiza-tion that such interceptions, under the conditions of reinspection possible in conditions of reinspection possible in this country, necessarily represented only a small part of what was actual-

only a small part of what was actually coming in.

"Under the policy of restricted entry, no plant or class of plants is embargoed, but any plant may be brought in for any of the essential purposes in for any of the essential purposes indicated above, under the safer inspection and control methods which are possible with limited imports. The importations of restricted or so-called 'embargoed' plants during the six-year period, 1919 to 1925, totaled nearly 50,000,000 plants, and, as indicating the liberality of entry under these provisions, it may be noted, for example, that there have been thus imported 80,000 rose plants, representing ported 80,000 rose plants, representing over 2000 different varieties, 1000 different varieties of gladioli, and about 1700 different dahlias."—Abstract from annual report of Secretary of Agricul-

Bench Grafting American Grapes

(Continued from page 5)

quantity and quality of fruit, wood growth and trunk girth were the chief criteria used. Later, it is planned to study the behavior of the roots, espe-cially as to their abundance and dis-

cially as to their abundance and disposal in the soil.

The fruit of Campbell, Delaware. Niagara, Concord and Catawba on all three stocks was markedly superior to that produced on the own-rooted vines. Iona was least of all benefited in quality through grafting. The fruit of Concord on Riparia Gloire was superior to that from vines on the superior to that from vines on the other stocks; Catawba on Clinton yielded by far the best fruit; Campbell yielded fruit of like quality on both Gloire and Clinton; while all three stocks seemed of equal value for Delayare and Nigary

for Delaware and Niagara.

The cane growth of all varieties on the three stocks has been considerably greater than that from the own-rooted plants. The ratings for this phase coincide rather closely with fruit quality as given above.

While the tonnage of fruit from Concord on the stocks was not much higher than that from the own-rooted vines in the early years of the experi-ment, it is now evident that Concord on Gloire is out-vielding the other grafted vines and the own-rooted ones. Campbell on both Clinton and Gloire have yielded very substantial increases over a long period. Delaware on Gloire has given a good annual increase over the other stocks and own roots. Of all the varieties, Catawba has shown the greatest improvement in quality from grafting, this being by far the highest on Clinton as a stock. Niagara on Clinton and St. George has yielded much higher than Niagara on Gloire or on own roots. While the quality of the fruit of Iona was not apparently improved through grafting, the fruit yields were increased on all stocks

It is believed that all in all, Riparia Gloire de Montpelier has thus far proven the best stock for Delaware in



Plan ahead on harvesting a

a dry packed sulphur fungicide of high concentration-90% available sulphur. The remaining 10% inert matter is an adhesive and spreader which gives the spray a greater covering and staying

DRITOMIC is most economical—in material, in handling expense and in labor of application. It flows freely and can be sprayed to cover a large area with lower pressures, also, you can use Orchard Brand Arsenate of Lead with Dritomic.

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these tests; that Campbell does about equally well on Clinton and Gloire; and that Niagara is at its best on Clinton. At present, the Gloire seems the best stock for Concord. A longer period is necessary for Concord to develop its latent possibilities when grafted than for the other varieties. This result substantiates earlier work with Concord, in which this variety was the last to show marked improvement through grafting. Clinton and St. George have been of approximately equal value as stocks for Iona, while equal value as stocks for Iona, while Clinton in these experiments is un-questionably the best stock for Ca-

tawba.

Thus far, there has not been any material influence of the stocks in hastening or in retarding ripening of fruit or cane, nor have the stocks influenced the time of foliation.

Possibilities With the Grafting of Other Varieties

No predictions can be made as to the likelihood of failure or success with other varieties or stocks, nor must it be assumed that the best stocks have been used in the experi-ments. The only sure way to learn whether the vigor and fruitfulness of a variety can be increased is through grafting, and also to determine the best stock for the purpose, is through

trial.

It is evident from our work that some varieties are so lacking in vigor that they are not improved through grafting on vigorous stocks. This seems improbable, but it is evident that a variety that produces but feeble wood and leaf growth is not stimulated sufficiently by the vigorous stock to properly supply the root system with plant food; consequently the roots lose their normal vigor. Jona, in these tests, seems to represent the lower limit of vigor for a scion variety. Such vigorous varieties as Conriety. Such vigorous varieties as Con-cord, Catawba, Niagara and Worden are increased in vigor through graft-

ing.
In conclusion, it may be stated that the grafting of American varieties will accommercial importance in the assume commercial importance in the future, but it is quite likely that methods will need to be modified and the cost of making, handling and growing

Certainly the use of grafted vines in the home garden should supersede the use of ordinary roots, especially with most of the varieties herein discussed.

Pruning Plums

THE NEW YORK Agricultural Experiment Station has noted little difference in the behavior of plums pruned heavily and pruned lightly in tests extending over several years. Since little pruning seems to give as good results as much pruning, the station regards it as waste of time and effort to prune the trees heavily. It is recommended that growers simply thin out thick growths where necessary and remove broken or injured and remove broken or injured branches.

sary and remove broken or injured branches.

Ten varieties of plums were used in the tests, including Abundance, Bradshaw, Burbank, DeSoto, Grand Duke, Wayland, Pottawattamie, Reine Claude, Shropshire and Italian Prune. The principal difference between the trees pruned according to the two methods was that the little pruned trees developed larger and broader heads. Also the heads on the little pruned trees were more symmetrical than those given heavy pruning. The increased size of the heads did not in any way retard maturity of the fruit or interfere with harvesting. The sizes of the trunks and branches of the two lots of trees were practically the same, and there was little difference in the height of the trees.

Shocking

"Well, darter," said Farmer Corntossle to his daughter on her return home from college, "How much do you weigh now?"

"Why," she replied, "I weigh 140 pounds undressed for Gym."

"Who the tarnation is Jim?" came from the old man.



Extra Insurance against Aphis-Kills both by Fumes and Contact

Take advantage of this two-fold control-when you spray with "Black Leaf 40" you kill Aphis, Thrips, Leaf Hopper, Psylla, Apple Red-Bug, etc., not only by direct contact (or hitting) but also because of the "gassing" effects of the volatile nicotine fumes which arise through the trees. For, when you mix "Black Leaf 40" with lime-sulphur, Bordeaux or calcium caseinate, or with soap alone, you convert the nicotine sulphate into highly volatile nicotine with powerful "gassing" properties.

Likewise, when you dust with Nicotine Dust, insects are killed by actual contact of the dust with their bodies and also by the powerful nicotine gas.

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TOBACCO BY-PRODUCTS & CHEMICAL CORP.

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Black Leaf 40" 40% Nicotine



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Planet Jr. No. 17 Single Wheel Hoe



New M Giant

THE GIAL ous growth ties, its hard juicy fruit. bearer whe I have been for many y I have dev prove of va Plan

Because o laya berry, at least 10 at least 10
variety will
the very poo
but, of cou
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the soil is, t when set

holes than about half f order to giv On good lan are unneces Care Du

The secon old plants ground when a foot high. plant will in the product berries and set of canes When the

are about si top buds sh will cause b leaf on the branches ar cut out the these also. should be us to remove a This prunin growing sea he hardy to A slender After the o they will be

themselves.

In the spi stead of cut second year pear at the is continued is nearly ov a twofold r growing of of large cro there will h fere with th

When the over, the ne to grow aga to stakes as before. No breaking ou

or more wone has been When the vested. the crop should ground. The better grow next year's

For Plan If you ar the tips of They will plants for spring. New duced from not come to show considerations.

Prohibitio liquor bein around here Old Nativ it's bein' ma

Spraying and Dusting Experiments in Connecticut THE TABLE presented below gives diately and sharply after a rain, while the results from five years' work in the other years the humidity on spraying and dusting, reported by the Connecticut Experiment Station in Bulletin 265. During the tests, de-tailed records were scored on 564,675 lagging over three or four days, and light rains were often accompanied by high and sustained rises in humidity.
The experiments indicate that better results from spraying would prob apples, consisting mostly of McIntosh, Greening, Gravenstein and Baldwin: Treatment. Pct. Pet. 14.7 Pet. 6.05

Codling Chewing Moth. Insecta Aphis. Red Bug. Curculio. Pet. 1.8 4.7 9.8 Pet. 1.3 2.6 12.8 Pct. .94 follow if the spraying could be

The experiments indicate that dusting is practically as good as spraying for the control of red bug, curculio, codling moth and other chewing in-sects. For the control of fungi, there is a wide variation in favor of spraying. Aphids were not controlled by either treatment. Scab proved the most serious of the fungi, with sooty blotch and fruit speck ranking next in order. The latter two pests make up the greater part of the injuries listed in the table as "Other Fungi." Rust, black rot and bitter rot were found to be quite rare in their occurrence.

Scab was least prevalent in 1920, during which year the largest rainfall was recorded during the five years. During 1921-22-23-24, in which seasons the rainfall was normal or less than normal, the per cent of scab was higher by 50 to 70 per cent than in 1920. A study of the weather conditions during April, May and June of these years showed that in 1920 the periods of high humidity were very short, the per cent of humidity dropping immedone before or during sustained per-ods of high humidity rather than be-fore rains. The tests indicate the alvisability of making a close study of weather conditions as a guide for the proper time to spray rather than to spore discharge. Since it is impossible to judge accurately from weather predictions, the authors, M. P. er predictions, the authors, M. P. Zappe and E. M. Stoddard, believe that growers should spray a certain number of times as insurance against fungi, timing the applications as near as possible to give maximum produc

The McIntosh was most susceptible to scab of any of the varieties used but the damage from insects and other fungi was less than on other varieties. Baldwin was the least susceptible to scab but much more susceptible to sooty blotch and fruit speck. In most cases it showed more curculio injury than other varieties. Gravenstein Gravenstein was more severely injured by aphili than the other varieties tested.

Acreages of Citrus in California

THE TABLES presented below show the acreage of citrus fruits in California by counties, arranged according to districts recognized by the California Fruit Growers' Exchange, by individual growers, and by the trade in general.

In addition to these acreages, there are a few orange and lemon tree growing in yards and family orchards but these are not of any importance from a commercial standpoint. For all practical purposes, therefore, the ta-bles show the total commercial acreage.

ESTIMATED ACREAGE CITRUS FRUITS IN CALIFORNIA BY COUNTIES-1925 -Grapefruit-Oranges--Lemons Bearing. . 5,417 The State. Northern California:
Butte
Colusa
Glenn 15 ...20 32 Solano
Tehama
Yolo
Yuba Central California: Fresno
Kern
Merced
San Joaquin
Stanislaus
Tulare Los Angeles. 475 125 11.740 2.387 40.040 5.231 Orange 510 25 9.748 1.322 41.680 2.721 Riverside 450 242 5.155 36 18.740 666 San Bernardino 2.090 239 5.431 274 39.615 1.117 San Diego. 90 20 6.818 326 4.138 54 Santa Barbara 8 ... 1.365 200 135 45 Ventura 10 3 5.675 313 3.210 1.604 1924 plantings not included. Estimated acreage planted in state, 1924: Grapefruit, 1,071; lemons, 498; oranges, 1,321. 40.040 41,680 18,740 39,615 4,138 135 3,210

ESTIMATED ACREAGE OF ORANGES BY VARIETIES-1995

-Nav	rels-	~~Vale	ncias	-Miscell		
Bearing.	*Non- bearing.	Bearing.	*Non- bearing.	Bearing.	*Non- bearing.	
Los Angeles18,334 Orange3,012	1,651 117	21,092 37,937	$\frac{3,580}{2,604}$	614 731		
Riverside	502 718	3,332 8,986	163 399	406 935		
Tulare	39	9,547	26	466	4	

Little Mistake

"As I was crossing the bridge the "As I was crossing the bridge the other day," said an Irishman, "I met Pat O'Brien. 'O'Brien,' says I, 'how are you?' 'Pretty well, thank you, Brady,' says he. 'Brady,' says I, 'that's not my name.' 'Faith,' says he, 'and mine's not O'Brien.'
"With that we again looked at each."

"With that we again looked at each other, an' sure enough it was nayther "She Done Gone"

A salesman, bringing his bride South on their honeymoon, visited a hotel, where he boasted of the fine

"Sambo," he asked the colored waiter, "where's my honey?"
"Ah don't know, boss," replied Sambo, eyeing the lady cautiously. "She don't wuk here no mo'."—Sour Owl.



What 20,000 Farmers Wanted Most

WENTY thousand farmers were asked what was the most important quality upon which they bought motor vehicles.

59% said durability. 11.1% said economical operation. 7.5% said low first cost.

The Speed Wagon has durability to suit the 59%. A recent report tells of one that has traveled 410,000 miles and is still going strong.

The Speed Wagon ensures economical operation. More than 125,000 in use prove that.

It is the lowest priced 1½-ton commercial car in the world—\$892.67 below the average of all trucks of from 1 to 1½ tons capacity.

CHASSIS \$1035 at Lansing

CAPACITY 11/4 Tons

REO MOTOR CAR COMPANY.

Lansino, Michigan

Six Fine Apple Orchards in Patrick Co., Va.

(Approximately 3500 acres on which are approximately 80,000 trees)

Pursuant to order of the United States District Court for the Western District of Virginia, the real estate holdings of Patrick Orchards, Inc., bankrupt, consisting of six separate orchards of from 3,000 to 32,000 bearing trees each, will be sold, in whole or separately

At Auction

These orchards are located in Patrick County, on the slopes of the Blue Ridge Mountains near Stuart, Va., on the Danville and Western Railway (a branch of the Southern) where good labor is cheap and plentiful. No better fruit section can be found. Close to cold storage. All of these orchards must go to the highest bidder.

April 6, 1926, at 1:30 P. M., at Stuart, Va.

TERMS: One-third cash, balance in equal amounts one and two
years, to be evidenced by two negotiable notes bearing interest at six
per cent. per annum, payable semi-annually. Title retained until
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We are anxious and willing to show this property before the sale.

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-Sour

New Method of Growing Giant Hymalaya Dewberries

By J. M. Sugg

THE GIANT HYMALAYA dewberry has long been known for its vigor-ous growth, its deep rooting quali-ties, its hardiness and its fine flavored, juicy fruit. Unfortunately, it is a shy parer when allowed to grow at will. I have been interested in this berry for many years, and through careful observation and study of it, I believe I have developed an idea that will prove of value to the berry growers of the country.

Planting Requirements

Because of the vigor of the Hymalaya berry, the plants should be set at least 10 feet apart each way. The variety will produce good results on the very poorest soil with proper care, but, of course, good moist soil will produce better results. The better the soil is, the larger will be the plants and the fruit.

When setting the plants in poor

and the fruit.

When setting the plants in poor soil, it is a good idea to dig larger holes than necessary and fill them about half full of good surface soil in order to give the plants a good start. On good land precautions of this kind are unnecessary.

Care During the Second Year

Care During the Second Year

The second year after planting, the old plants should be cut off at the ground when the new canes are about a foot high. The entire energy of the plant will in this way be diverted to the production of a good crop of berries and to the growing of a strong set of canes for the third year's crop.

When the new second year canes are about six or seven feet high, the top buds should be pruned out. This will cause branches to grow at every leaf on the new canes. When these branches are three to four feet long, cut out the terminal bud on each of these also. After this, a sharp knife should be used every week or 10 days to remove any new shoots which start. This pruning of the canes during the growing season will cause them to become short and stout and they will be hardy to cold weather. The second year canes should be supported by a slender stake and tied upright to it. A slender stake will be sufficient. After the canes are pruned awhile, they will be strong enough to support themselves.

The New idea

The New Idea

The New idea

In the spring of the third year, instead of cutting out the canes of the second year, I reverse the process and remove the new canes as they appear at the base of the old ones. This is continued until the blooming season is nearly over. The operation serves a twofold purpose. First, it diverts food materials which would go to the growing of canes to the production of large crops of fine fruit. Secondly, there will be no new canes to interfere with the picking of the crop.

When the blooming season is nearly over, the new canes should be allowed to grow again. They should be tied to stakes and pruned as in the year before. No harm will follow the breaking out of the canes, since two or more will usually appear where one has been broken off.

When the berry crop has been harvested, the old canes that bore the ground. This process will promote a better growth of new canes for the next year's crop.

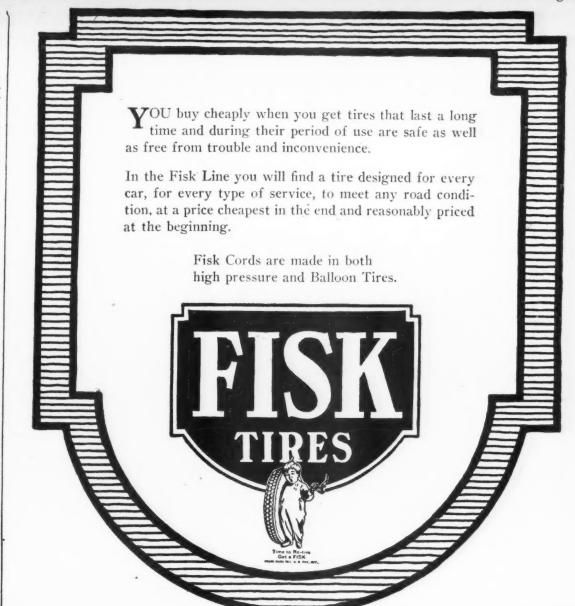
next year's crop.

For Plant Production Purposes

If you are growing plants, do not prune at all. Place a little soil on the tips of the canes late in the fall. They will take root and form new plants for removal the following pring. New plants can also be produced from the seed, but these do not come true to the variety and show considerable variation.

Prohibition Agent-Is there liquor being manufactured filicitly around here?

Old Native—I dunno exactly how it's bein' manufactured, but it sure is.



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Makes Farm Work Quicker, Easier and

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Here is a dependable, low-cost tractor that takes the drudgery out of farming and enables you in a day's time. The CENTAUR is a different tractor—more flexible than any other—better fitted for all 'round use on the farm—less expensive to buy and operate—and above all, trouble-proof. This sturdy tractor will cut your planting and cultivating costs to the minimum and give you an inexpensive power unit for dozens of other jobs.

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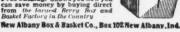
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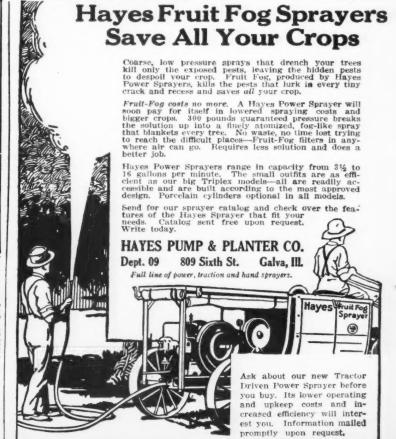
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Spot Dust To Control APPLE APHIS

The surest, safest and most economical method of controlling Apple Aphis and Apple Leafhopper is spot dusting with Cyanogas S-Dusting Mixture. Just fill a Cyanogas Knapsack Duster, go out in the orchard and dust the infested places.

Scientists have agreed that it is a waste of good time and material to dust whole trees when this simple and effective remedy will keep the Aphis in check at a much lower cost.

S-Dusting Mixture

is easy to use -just dust it on the trees. The dust on striking the air gives off hydrocyanic acid gas. Contact with the dust particles is not necessary as the gas reaches all the infested foliage and does the killing.

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"It's the gas that kills them"

Send for leaflet 194 which gives full information

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selling good seeds to satisfied
customers. Prices below all
others. Extra lot free in all
orders I fill. Big free catalogue has over 700 pictures of
vegetables and flowers. Send
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R. H. SHUMWAY, Rockford, III.

The Berlin Quart

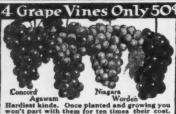
That secures highest prices f your fruit. Write for 1926 cat log showing our complete li



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Concord Best known grape. Sure to succed. Fine for grape Juice 18c. 12, 31-25; 100, 38.00.

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Worden Large black bernes. Bunches bys. Extra early, hardy, aweet. 20c; 12, 31-50; 100, 310.

Strong, well-rocted vines ONLY 50c Set of four best varieties Postpaid and Satisfaction Guaranteed

Three Sets for \$1 Three sets (12 vines) sent to

each, from you. se With Every Order red and Nursery Catalog and illustrated ormaking a beautiful GRAPE ARBOR. The Templin-Bradley Co. Three and four crops every year and no snow r frost. Florida is in immediate need of thous-nds of farmers. Send for sample copy of Florida iews, a weekly magazine of Florida, devoted specially to agriculture, farming and real estate evelopment, business opportunities and resorts; andamnts! Illustrated.

The Farmer's Paradise—FLORIDA

FLORIDA NEWS, 150 Lafayotte St., New York / A THE REAL PROPERTY.

Smudge Pots and Apricots By A. H. Hendrickson

University of California

ORCHARD heating is accepted as one of the regular cultural operations by the apricot growers of the Santa Clara Valley in California. It is not one of the pleasantest jobs of the year, but in many orchards it is certainly placed high in order of importance. Lack of pruning, spraying, cultivation or irrigation may beginning to show 25 degrees to the season and fruit will stand for 30 minutes without injury are: in bud, petall beginning to show 25 degrees to the season and fruit will stand for 30 minutes without injury are: spraying, cultivation or irrigation may not show deleterious effects for a sea-

beginning to show, 25 degrees; in blossom, 27 degrees; fruit setting, 2



Figure 1 .- Santa Clara Valley apricot orchard with orchard heaters in place

son or two, but if the oil pots are neglected, the results are often very disastrous. Nothing in the routine of orchard work is quite so disheartening as the loss of an entire season's work on a single frosty night.

Climate and Topography Favorable

Climate and Topography Favorable

Fortunately, the climatic condition and the local topography make orchard heating in California considerably less of a task than might ordinarily be supposed. In the first place, the amount of frost to be guarded against is rarely more than three or four degrees. Furthermore, the average frost is of short duration. Sometimes the danger point is not reached until daylight, while at other times the pots must be lighted as early as two o'clock. In a few instances it has been necessary to start the heaters before midnight. The number of frosts which may be expected during the critical period varies from three or four to 11 or 12, the average being somewhere between four and seven. somewhere between four and seven. Thus, it will be seen that the proposition of "heating up all out-of-doors" is not so formidable as it may seem to the winitiated. the uninitiated.

Critical Period from March to Early May

The critical period for apricots, because of their early blossoming, begins at the time the fruit sets, which is early in March, and lasts until the

degrees; after the jackets have fallen, 30 degrees. These temperatures have been substantiated by observation over a number of years. In one case a grower was awakened by his frost alarm and was dressed and ready to light his pots shortly before daylight The mercury in the thermometer was dropping very slowly, so he waited At daylight the thermometer stood at 29½ degrees. Instead of lighting his pots as he should have done because pots as he should have done because his young apricots were the size of marbles and therefore quite tender, he waited for surrise. The sun did not rise over the hills to the east for nearly 30 minutes, with the result that one-third of the crop was lost. The almanac told him when he could expect safety at surrise, but the thermometer should have warned him of what was taking place in the fruit. mometer should have warned him of what was taking place in the fruit. In another case the thermograph record in an apricot orchard showed a temperature of 27 degrees for three hours when the fruit was setting. Fully 70 per cent of the crop was frozen. It is probable that the fruit at this stage of growth would have withstood a temperature of 27 degrees for a half hour without material damage, but three hours was too long. The apricot tree, however, is perfectly hards and is never injured by cold hardy and is never injured by cold

during ordinary winters.

The ordinary equipment used consists of approximately 100 open of

that the to be Hed orbit.

lard pail t storage tar enough to 'firings for refilling with long ers, an ele eral good size of hea size of hea of time it fires burni The one-ga ly two to gallon size hours. Ma canneries tory serviceral years. square for with a do edge on the chard. The ligh

kerosene n wick at 1 starting t tipped up the flamin face of th can light hour. As lighted at considerab Consu

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the grower mometer sufficiently the remain til needed. the temper danger po ful grower mometer temperatur ly waste t started, the all pots ar the temper the danger ers, the re than ordin necessitate crop is to necessity tomato car cans toget cession. all the po other nigh working le dom come afford to The oil



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enough to hold sufficient oil for three enough to hold summent on for three "firings," a supply wagon (Figure 2) for refilling the pots, several oil cans with long spouts for lighting the heaters, an electric frost alarm and several good tested thermometers. The size of heater depends on the length of time it is necessary to keep the free hurring any one night fires burning during any one night. The one-gallon size burns approximately two to three hours, while the twogallon size burns from four to six hours. Many growers have used No. 10 tomato cans obtained from nearby to tomato cans obtained from hearby canneries. These cans give satisfac-tory service and can be used for sev-eral years. One pot is placed in the square formed by each four trees, with a double row along the outer edge on the windward side of the orchard.

chard.

The lighting torches hold about a gallon of fuel, usually gasoline and kerosene mixed, and are fitted with a wick at the end of the spout. In starting the fires, the covers are knocked off with a stick, and the torch timed up to allow several drops of tipped up to allow several drops of the flaming liquid to fall on the sur-face of the fuel oil. An active man can light about 400 to 600 pots in an hour. As only the alternate rows are lighted at first, one man can cover a considerable area in a short time.

Consult Thermometers Often

Consult Thermometers Often

When each alternate row is lighted, the grower consults his thermometers and compares them with a check thermometer placed outside the heated area. If the temperature is raised sufficiently with half of the heaters, the remainder are held in reserve until needed. It is unnecessary to raise the temperature more than just above the danger point. For example, if the danger point is 30 degrees, the skillful grower is satisfied when the thermometer stands at 31. To raise the temperature to 33 degrees would merely waste the oil. After the fires are started, the grower patrols the orchard at frequent intervals to see that all pots are burning properly. In case the temperature cannot be held above all pots are burning properly. In case the temperature cannot be held above the danger point with half of the heatthe danger point with half of the heaters, the remainder are lighted. Sometimes in the case of frosts of more than ordinary duration, the heaters may burn out before sunrise. This necessitates refilling the pots if the crop is to be saved. To obviate the necessity of refilling, growers using tomato cans often place two or three cans together and light them in succession. After a night of smudging all the pots must be refilled for another night's firing. This necessitates working long hours, but as frost seldom comes singly, the grower cannot dom comes singly, the grower cannot afford to "take a chance" for even

The oil used is a special type known

lard pail type of heaters per acre, a as smudge oil, with a Baume reading storage tank (Figures 3 and 4) large of 27 to 29 degrees. It costs about seven of 27 to 29 degrees. It costs about seven cents per gallon delivered to the or-Each heating costs from \$1.75 chard. to \$2 per acre per hour when half the pots are lighted, and double that amount when it is necessary to start all of the heaters.

described Prair drawer

Low Open Heater Best

The low open heater used seems to The low open heater used seems to be well adapted for use in this section, but it has the disadvantage of making a very smoky fire. Meteorologists and growers agree that it is desirable to have small fires close to the ground. The heat rises slowly and spreads out, covering the whole area in which the pots are situated. No strong upward convection currents are produced which tend to draw in the cold air from the surrounding fields. produced which tend to draw in the cold air from the surrounding fields. The heat utilized is largely the heat of convection, very little radiant heat being given off by this type of heater. The heated air rises slowly until it reaches the point in the upper air which has the same temperature. This point is rarely more than 40 or 50 feet above the surface of the ground.

It has been observed that frosts usually occur in this region in the spring months during periods of high barometer pressure when the day has

spring months during periods of high barometer pressure when the day has been fairly warm. Under these conditions when the sky is clear and there is no wind, if the temperature reaches 40 degrees at nine o'clock at night, frost usually occurs before sunrise the following morning. However, if the barometer begins to fall during the night, the temperature often rises several degrees and there is then no necessity of smudging. Sometimes a west wind arises which generally brings in clouds or fog over the mountains in the west. Whenever this happens there is no danger of frost. pens there is no danger of frost.

Heating Is Economically Possible in Santa Clara Valley

A combination of important factors make the apricot orchard of the San-ta Clara Valley one of the few places where orchard heating is economically possible. This section has long been known as a district pre-eminently adapted to the growing of apricots for adapted to the growing of apricots for canning. As a canning fruit, that is produced commercially only in California, the apricot usually sells for comparatively high prices. The land on which it is grown is expensive, often selling for \$1000 to \$1500 or more per acre. Except for the spring frost hazard, the climate during the rest of the year is such as to bring this fruit to its highest stage of perfection. Hence, the grower feels justified in making the heavy expenditures necessary in orchard heating. Furthermore, many of the orchards are in small holdings, and no crop other than apricots is grown. The grower (Concluded on page 42)

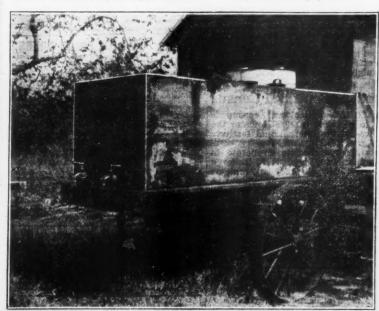


Figure 2.—Tank wagon for refilling smudge pote The pots are filled by means of five-gallon spout cans or pails. The large faucets allow these to be filled quickly.



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Write today for free folder. Address John Deere, Moline, Illinois, and ask for folder OC-81.

Smudge Pots and Apricots

(Continued from page 41) must choose between buying oil and looking for a job in the city.

Orchard Heating Is Exacting Work

No other orchard practice is quite so exacting as orchard heating. It must be persistently carried out or left entirely alone. Careless spraying,



Figure 3.-Growers with small orchards often use old drums for storing oil for smudging

indifferent pruning or slipshod cultivation may not seriously affect the crop or injure the trees, but one slip in heating often means a year's work gone for nothing. Each year there are those growers who forget to order oil or forget to connect up the frost alarm.

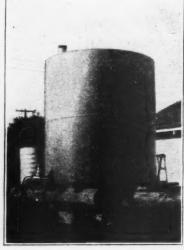


Figure 4.—Storage tanks are used by ome growers to handle refilling require-nents. This tank will hold sufficient oll for about eight acres of orchard

result is that the crop is frozen and the cash outlay for oil which may have been used for previous smudgings is lost. As one grower said following a frost after he had left his alarm dis-connected, "That was the most expen-sive night's sleep I ever had."

World Agricultural Census

A WORLD agricultural census is to be taken in 1930-31 under the auspices of the International Institute of Agriculture. Forty-four governments have agreed to co-operate in the undertaking, and it is believed that practically all other governments will join in the movement as soon as definite plans are submitted to them. L. M. Estabrook, who is taking an active hand in this work, is in the United States at the present time consulting with specialists in the Bureau of Census and other bureaus concerning details of the standard form of schedule.

"Very, very sad, sir," said the doctor, "I greatly regret to tell you your wife's mind is completely gone."
"Well, I'm not surprised, Doc," returned the husband, "she's been giving

me a piece of it every day for the last 15 years."

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DUE TO past w scarce, but weather th according ture of the vere frosts February of Florida. the growth tage of the plications

Investiga that twigs badly curle protected of their grow grown, the tions of the stages they

as a result. The obje should be t This will fruit and v turity of flush of gr may be

The Value of Cover Crops in the Orchard By E. L. Proebsting University of California The Value of Cover Crops throughout the spring, which is not a good thing in that it furnishes a constant food supply for the aphids. Isolated colonies of aphids should be immediately destroyed. In the case

University of California

COVER crops, provided adequate moisture is present for both the trees and the crop, are of considerable benefit to the orchard. The more imbenefit to the orchard. The more important of these beneficial effects may be listed as follows:

1. If the crop is leguminous, it adds nitrogen to the soil.
2. It provides a favorable medium for growth of soil organisms.
3. It improves the physical condition

of the soil.

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It is well known that certain bacteria grow in nodules formed on the roots of legumes. These bacteria have the power of "fixing" atmospheric nitrogen, that is, changing it from a form practically useless to the plant to one which is readily absorbed. The addition of this element is an important part of maintaining permanent agriculture.

It is not so generally known that there are many kinds of microscopic organisms that occur in the soil. These organisms that occur in the soil. These are of many sorts, both animals and plants being among them. One of the important kinds is the ammonifying bacteria. These bacteria take the complex forms of nitrogen compounds, such as proteins, and digest them with the production of ammonia. A small amount of ammonia is used directly by the plant. A much larger amount is transformed to nitrites by another group of bacteria, and still another group carries the process further to the nitrate stage. This is probably the form in which most nitrogen used by form in which most nitrogen used by the plant is absorbed.

the plant is absorbed.

Besides these organisms working in the soil on the forms of nitrogen there are many acting on other compounds, such as those of sulphur, iron, phosphorus, etc. They also help to put the elements into a form suitable for absorption by the plants. In order that these beneficial processes may be carried on in the soil, it is necessary that a proper environment be supplied. This is very greatly aided by the use of cover crops.

It has been found that the ability of the soil to maintain a desirable tex-

the soil to maintain a desirable tex-ture is greatly influenced by the amount of certain materials in it. An amount of certain materials in it. An important group of these materials is supplied to the soil by the decomposition of cover crops. They tend to prevent puddling of the soil, especially heavy soils, where this is apt to be serious. They also increase the water-holding capacity of the soil, which is especially important in a region of prolonged dry weather.

While these items do not tell all of the story, they serve to show the

the story, they serve to show the value of a cover crop to the orchard.

Check Citrus Aphids at the Start

DUE TO the prolonged cold of the past winter, citrus aphids are now scarce, but with the advent of warm weather they may propagate rapidly, according to the College of Agriculture of the University of Florida. Severe frosts have never occurred after February 10 in the main citrus belt of Florida, and it is now safe to push the growth in order to gain an advantage of the aphid. Growers should begin immediately to make liberal applications of fertilizers and cultivate plications of fertilizers and cultivate the groves.

Investigations last season showed Investigations last season showed that twigs on which the leaves were badly curled bore no fruit. It is especially important that the leaves be protected during the early stages of their growth. After they are half grown, they will stand heavy infestations of the aphids, while in the early stages they are easily injured and curl as a result

stages they are easily injured and can as a result.

The object of growers, therefore, should be to obtain a vigorous growth before the aphids become abundant. This will insure a better setting of fruit and will tend to hasten the maturity of the foliage after the first flush of growth. Otherwise, the tree may be putting out new growth

of colonies found near the ends of twigs, the quickest way to destroy them is to dip them in a solution of nicotine sulphate or extract of derris, one part to 800 of water, or stronger. If nicotine sulphate is used, add three or four pounds of soap to each 50 gallons of material.

For aphids on the stubby growth near the center of the tree, spray with a good contact insecticide, such as nicotine sulphate, oil emulsion or lime-sulphur. They can also be controlled by dusting with nicotine sulphate-lime

If growers will do their best to stimulate the spring growth and also adopt measures to keep down the aphids for a few weeks, they may be able to carry the new growth through the infestation period with little spraying or dusting, according to Prof. J. R. Watson, Entomologist of the Florida Experiment Station.

Michigan Gives Courses Over Radio

THE MICHIGAN State College has been giving courses of instruction over radio station WKAR, located at over radio station WKAK, located at East Lansing. The horticultural course began on January 13 and will continue to March 31. It is given on Wednes-days between 7:15 and 8:00 p. m. The following subjects are yet to be cov-

March 3—Strength of Material and Dosage in Spraying, by W. C. Dutton. Strawberries and Strawberry Grow-

ing, by R. E. Loree.

March 10—Asparagus Culture, by

G. E. Starr.
Amateur Nut Culture, by V. R.

Gardner.
March 17—How to Make and Maintain a Lawn, by R. E. Loree.
Bridge Grafting Girdled Trees, by

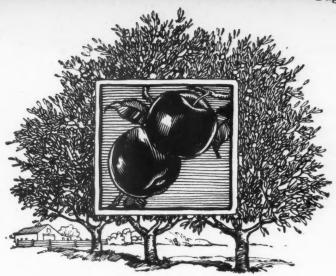
Bridge Grafting Girdled Trees, by F. C. Bradford.
March 24—Good Varieties for the Home Garden, by G. E. Starr.
Growing Tomatoes, by J. B. Edmond.
March 31—Window Boxes and Hanging Baskets, by R. E. Loree.
Growing Melons, by J. B. Edmond.

P ROF. JOSEPH OSKAMP of the Cornell College of Agriculture gives the following directions for pruning young grapevines:

"At planting time, and the year after, young grapevines should be cut back to two buds and tied to stakes for support. The second summer each vine should send out a cane long enough to be tied to the top wire of a trellis. This trellis, if the Kniffin system of training is used, should have two wires, one at a height of five feet and the other three feet from the feet and the other three feet from the ground. Number nine or 10 wire is generally used and strung on posts

generally used and strung on posts set 25 feet apart.
"In the summer after the third pruning, canes will develop from the one tall trunk left, and all of these should be removed in the winter pruning except two at the top wire and two at the lower wire; these four canes should be tied to the wires to the right and left at right angles to the upright trunk, and should be cut back to four buds each."

E. I. du PONT de Nemours and Company, Wilmington, Del., has prepared a number of moving picture films pertaining to the use of dynamite in connection with farming and fruit growing. These films will be loaned out to agricultural organizations and to other organizations and to other organizations inter-I. du PONT de Nemours and Comloaned out to agricultural organizations and to other organizations interested in the subject. A picture of this kind displayed at farm meetings will provide an interesting side line to some of the other subjects handled at such meetings. A letter addressed to the company will bring more detailed information as to the nature of the various films which are available, and will also give advice as to how the films may be secured by those interested in them.



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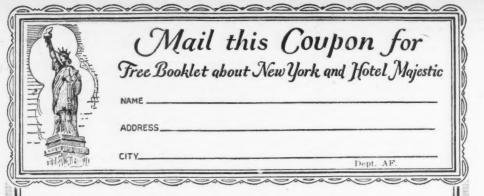
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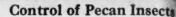
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STUDIES of various insect pests at fecting nut trees have been carried on by the Bureau of Entomology of the United States Department of Agriculture within the past year. Among these are included the larger and lesser chestnut weevils, the hazelnut weevil the hickory twig-girdler, the pecan nut case-bearer, and pecan weevil.

case-bearer, and pecan weevil.

Among pecan insects, the pecan nucase-bearer has received special attention. Knowledge of its life history has been amplified. Many experiments with arsenical sprays have been carried on in pecan groves to determine therevalue when applied at different time and at different dosages. The control of the insect is considerably complicated on account of the sensitivenes of the pecan to arsenical sprays. Other materials, such as oil emulsions, have been tested for possible use on tree while still dormant. No very satisfactory results have been obtained.

tory results have been obtained.

The pecan weevil, which is quite injurious locally, has been the subject of careful study both from the biologic and control standpoints. Preliminary results indicate that the beetles can be killed by arsenicals while on the tree during August and September. The larvae, or grubs in the nuts, it has been found, will succumb to proper dosages of carbon disulphide. A goodly number of parasites of the insectivatacking pecan trees and nuts have been studied from time to time as opportunity offered, and it is possible that some means may be found of encouraging them.

Parasite for Walnut Codlin Moth

IT APPEARS likely that a valuable predaceous parasite of the walnut codlin moth has been discovered in the Los Nietos district of California. Earl Miller, a walnut grower, noted that many of the larval cocoons underbands put on his trees late last summer were empty and that a strangs worm was present in many instances where the empty cocoons were found. He brought the matter to the attention of K. L. Wolff, Deputy Horticultural Commissioner in charge of walnut codlin moth control. Specimens were sent to Prof. H. J. Quayle, Entomologist, but complete identification has as yet been impossible because of the absence of adult forms. This is the first time that the insect has been reported in Los Angeles County, but its work in one or two orchards indicates that it may develop into an important factor in the control of the walnut codlin moth. Prof. Quayle found the same insect in the Santa Ana district about two years ago. It worked in the manner described, but its activities were confined to a small area and it later disappeared.

Peach Variety Tests in California

THE DIVISION of Pomology of the University of California is conducting an extensive test of peach varieties at Davis. The main object of the test is to compare under uniform conditions all of the well-known varieties as well as promising new sorts. The collection of varieties will also prove of value in identifying varieties and in standardizing the nomenclature of peaches. It is expected also that the test will furnish material for future breeding experiments.

The collection contains at present over 200 varieties, most of which have been planted during the past three years. Practically all of the peach varieties grown in California are included, as well as the better sorts grown in eastern and southern peach sections.

"Johnny, does your father ever pray?"
"Yes, ma'am. Just last night \$\$

"Yes, ma'am. Just last night at supper he said, 'Good Lord! We've got beans again.'" for A

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THE FAC ticular v or plant e rade-mark species or them, is the decision of Patents rec-Application company for same "Aus Patent Office

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THE FACT that a name for a particular variety of fruit-bearing tree or plant cannot be protected as a trade-mark by the one originating the species or the nurseryman selling them, is the subject of an interesting decision of the Commissioner of patents recently made public.

Application was made by a nursery company for the registration of the same "Austrian Prune Plum" in the patent Office as a trade-mark, claiming that it had been used as a name for a

Tree Name

By John J. Riley

to exercise decide Works

Patent Office as a trade-mark, claiming that it had been used as a name for a time of fruit trees, scions, grafts, cuttings, stocks and roots, presumably of one particular nature. As the federal law allows registration of valid trade-marks only, the application was rejected for the reason that the name "Austrian Prune Plum" did not perform a trade-mark function, was therefore not a trade-mark and not registrable.

It was pointed out in the decision

trable.

It was pointed out in the decision that a mere name for an organic article, such as a species of tree or vine, which by the law of its nature is reproductive, cannot be sustained as a trade-mark. That is, it was not used as a mark on a varied class of nursery products to indicate that all goods showing that name or mark were cultivated or prepared for sale and jut upon the market by a particular individual or concern, and to distinguish them from like products sold by others.

In this instance the words merely

In this instance the words merely served to name a new kind of tree and the means of reproducing it, by which it could be identified among the other varieties of fruit trees. Trees of the particularly named species would be sold for the express purpose of reproducing its kind in the hands of their purchasers, and the seller would not in any way prohibit him from calling his new trees by the tame name or from selling them to third parties under that recognized title. The original seller would therefore have no right to the exclusive the such a name under trade-mark aw, such as is one of the essential dements of a valid trade-mark from the legal standpoint.

It must be understood, however, that his does not apply to the use of a particular mark on all or many variedes of trees, vines, or plants removed from the soil and sold by a nurseryman, so long as the mark is not applied as a name for a particular or pecific kind of tree. In the former tase, trade-mark use is evident—the mark would be used to show that all arieties of trees or plants showing that mark were put on the market by one person or company. In this instance the words merely

Problems in Pruning Apples

How Much to prune and in what way to prune are questions which aways occupy the thoughts of apple gowers. Horticulturists at the New fork State Experiment Station at Geneva have conducted experiments for many years and have accumulated aluable information on the subject.

According to these authorities, apple trees require comparatively little runing for best results. Low-headed trees have decided advantages over high-headed trees.

The pruning experiments were con-

Mgh-headed trees.

The pruning experiments were conducted with Baldwin, Boiken, Esopus, Bubbardston, McIntosh, Spy, Greening, Rome and King. The comparison of little and much pruning was made with trees headed about two feet high when set out. After a tree is properly started, little pruning will later produce a tree with a larger head, having a greater bearing area, with less affort than much pruning. These condusions were reached after observadusions were reached after observa-dusions were reached after observa-dions lasting 10 years. The trees maintained equally as good a shape and symmetry under little pruning as under much pruning. These conclu-dions apply to all standard varieties of apples, according to the experiment

The station workers found that the root systems of low-headed trees were more firmly established in the soil and offered greater resistance to the wind than did those of high-headed trees. This should prove an important advantage, especially in exposed locations. The trunks and branches of the low-headed trees were also larger and stockier, and they had larger heads with a greater bearing area than did the high-headed trees. The station workers found that the No Trade-Mark Rights in

Shipments of Nursery Stock into Canada

A CCORDING to regulations recently issued by the Dominion of Canada, persons desiring to ship into that country nursery stock grown in the United States must apply for a permit from the Department of Agriculture at Ottawa. The application must state Ottawa. The application must state the quantity, kind and value of the nursery stock; the state and locality where grown; the destination; ad-dress of consignor and consignee; and the intended port of clearance.

A copy of the permit, which will be furnished the applicant, must be filed with the collector of customs at the port of entry. No permit will be issued for stock restricted or prohibited by embargo or quarantine. All importations will be under the right of the tations will be made at the risk of the importer.

All shipments of nursery stock, un-All shipments of nursery stock, un-less exempt, shall be accompanied by a certificate showing the same to have been fumigated, including the date. The following are exempt from fumi-gation: greenhouse grown plants, herbaceous perennials, brambles, grapevines, conifers, bulbs, and scions. All shipments from the United States shall have attached a certificate of inshall have attached a certificate of in-spection signed by an authorized state or federal official. The certificates shall state that the stock was found apparently free from pests and dis-

Average Income From Farms, 1924-25

THE REPORT of the Bureau of Agricultural Economics for the year ending June 30, 1925, contains a large amount of valuable information. A matter of particular interest is the information it gives pertaining to the income from farms during the year.

The department investigated the re-

turns from 15,109 farms for 1924. These farms, it was found, represented an average investment of \$17,260. ed an average investment of \$17,260. The survey shows that the owners, on the average, received a return of \$1205 per farm as a return on his investment and for the labor of himself and family.

The return per farm for 1924 includes \$1024 in cash and an increase of inventory of \$181 per farm for the crops, livestock, machinery and farm supplies on hand January 21, 1925, as compared with January 21, 1924. It should be stated that in addition

It should be stated that in addition to the return of \$1205 per farm, the family received the use of the dwelling and such food and fuel as could be produced and consumed on the farm. Of 13,700 farms reporting, the value of the fuel and food produced per family was \$266. No estimate was placed on the value of the rent.

I N SAN BERNARDINO county, California, close to the Nevada line, lies Death Valley, a rough desert tract over 200 feet below sea level. It is said to be the lowest ground in the United States. Borax mines are worked there. The high Sierra mountains rise out of the valley and among these is found Mt. Whitney, the highest peak in the United States (not including Alaska). It is 14,501

A company has recently been organ-A company has recently been organized for the purpose of growing dates in certain parts of Death Valley. The conditions are said to be specially fitted for the culture of this crop. The mountains supply plenty of water for irrigation purposes. Dates thrive best in moist soil and dry air.—Walter Wester.

In The Final Analysis **Dusting Is Right**

1. It Assures Clean Fruit

2. Cuts Labor Cost

Dusting enables a grower to cover his entire orchard with pest de-stroying material in the shortest possible time and timeliness of appli-cation is the biggest factor in pest control.

Dusting helps solve the labor shortage problem. Figure it out for yourself. One man and a boy can cover an orchard in one-fourth to one-fifth the time it takes a spraying crew to do the same work.

Such being the case, in order to grow and market fruit most profitably every orchardist must learn and know how to employ the most successful methods of dusting practice. To make this possible the Niagarra Sprayer Company has developed a highly trained scientific organization to co-operate with all users of Niagarra Dusts and Dusters and advise not only on each man's individual dusting problems, but also to keep him constantly in touch with the newest and latest developments in dusting practice.

Dusting the Niagara Way Is a **Guarantee of Right Dusting**

First it assures the use of Dusting Machines that have been developed to sturdy perfection by years of actual practical use. Second, it assures the use of Dusting materials that are known from one end of the country to the other for quality and effectiveness. Third, it assures that both dusters and dusts will be used to the best advantage to produce results by means of scientific co-operation from Dusting Headquarters.

Every grower will find it to his advantage to investigate the Niagara Method thoroughly and find out how to save money, time and crops by getting the right Niagara for his farm. *Talk with your dealer or write us.

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Hand, Traction and Power Dusters

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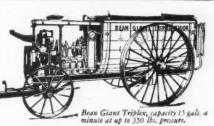
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If you want to make more money grow more "Extra Fancy Grade." Inferior quality seldom pays the cost of production. Culls are usually almost a total loss. The big profits are in the extra fancy fruit.

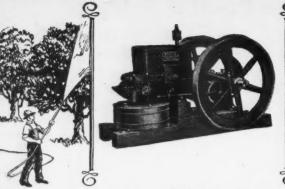
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HUGE INSECT COST

"Bugs cost the American Farmer 2 billion dollars a year—In two years the loss would equal France's total debt to the United States. The fruit-raiser pays a huge portion of this tax. From It L. O. Howard. Chief Entomologist for the U. S. Government, a reported by Harbert Corey.

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THIS year, more than ever before, fruitgrowers are enlisting the aid of the dependable WITTE Engine in fighting the insect
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a breakdown. Uses all cheapest fuels—kerosene,
gas-oil, gasoline, distillate or gas. Simple to
operate, easy to start, runs perfectly on the uneven keel of wagon bed, truck or uneven ground.

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reputation for unusually long life through perfect alignment, micrometer fit and protective housings. But now we have the ultimate—the hood—made possible by the special cooling system which prevents overheating of the engine. This system includes piping the full length of the spray mixture tank; this insures perfect cooling because of the large amount of liquid spray which is so frequently replenished. This is only one of many exclusive Hardie features. Write for catalog and learn the rest. It may save you a good deal of money for its spraying time dependability counts. for its spraying time dependability counts

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HOT WEATHER during summer, the lack of sufficient moisture, the white-pine blister rust and the currant maggot are the chief factors limiting the growing of currants and gooseberries in the United States. Currants and gooseberries, both wild and cultivated, are responsible for the spread of white-pine blister rust. This spread of white-pine blister rust. This disease destroys much of the white pine timber of the United States. The control of white-pine blister rust is important, therefore, both in small fruit growing and in the preservation of our timber supply.

A new bulletin on the culture of curant conductors in relation to

a new bulletin on the culture of cur-rants and gooseberries in relation to white-pine blister rust has recently been issued by the United States Deper issued by the United States De-partment of Agriculture as Farmers' Bulletin 1398. The bulletin describes the regions adapted for currant and gooseberry culture, and it also calls attention to the regions in which the growing of currants and gooseberries is prohibited. The best methods of growing currants and gooseberries in the districts in which culture is per-

mitted are described.

The white-pine blister rust is caused by a fungus of foreign origin. It is like the red cedar rust in that it must grow on two plants in order to complete its life history. The fungus first grows on the leaves of currants and goose-berries, after which it infects the pines. The removal of all currants and gooseberries from an infected area

and gooseberries from an infected area prevents the disease from completing its life history, and thus the pines do not become infected.

The European or English black currants are more susceptible to whitepine blister rust than any other type of currant or gooseberry. This species is the most active agent concerned in the long distance spread and establishment of the disease. The growing of black currants should be abandoned throughout the United States, according to the bulletin. ing to the bulletin.

All growers interested in the cul-ture of gooseberries and currants should secure a copy of Farmers' Bulletin 1398 from the Department of Agriculture, Washington, D. C.

Experiments With Dry Lime-Sulphur

A FTER conducting tests for three years, the United States Department of Agriculture has concluded that dry lime-sulphur preparations consisting of calcium, sodium and barium sulphurs, even when used at greater strengths than ordinarily employed, do not furnish a satisfactory control for San Jose scale. The liquid lime-sulphur sprays are more efficient, in the opinion of department experts.

in the opinion of department experts.

The results of this investigation are published in Department Bulletin 1371, a copy of which may be obtained from the Department of Agriculture, Washington, D. C.

Origin of Early and Late **Crawford Peaches**

THE EARLY and Late Crawford varieties of peaches ranked supreme during the last half of the nineteenth century, but in recent years they have been largely displaced by other varieties. The origin of these varieties has been in doubt until recently. Prof. M. A. Blake of New Jersey has recently discovered information which seems to establish the origin of these varie-

Miss Anna Crawford, daughter of Miss Anna Crawford, daughter of William H. Crawford, descendant of an English family with a long and noteworthy record, has cited Prof. Blake to literature which apparently proves that her father originated these two varieties about 1840 at Monmouth,

John Kenric, a famous nurseryman at Newton, Mass., received both the Late Crawford and the Smock from Middletown, N. J., in 1840. The Smock

Currants and Gooseberries
Harbor White Pine
Blister Rust
HOT WEATHER during summer, the lack of sufficient moisture, the white-pine blister rust and the white-pine blister rust and the sum of the lack of sufficient moisture, the white-pine blister rust and the sum of the lack of sufficient moisture, the white-pine blister rust and the sum of the lack of sufficient moisture, the white-pine blister rust and the sum of the lack of sufficient moisture, the white-pine blister rust and the sum of the lack of sufficient moisture, the white-pine blister rust and the sum of the lack of sufficient moisture, the white-pine blister rust and the sum of the lack of sufficient moisture, the white-pine blister rust and the sum of the lack of sufficient moisture, th to Massachusetts in 1840.

Artificial Method of Hail Prevention

THE WEATHER BUREAU of the United States Department of Assiculture, in response to frequent requests as to whether or not hailstorms can be prevented by artificial means, answers in the negative. In Europe, millions of dollars' worth

of ammunition have been exploded in clouds in an effort to avert hailstorms. Some persons have gone so far as to develop special kinds of mortan, bombs and rockets. Before the Work War it was rather common, especially in France, to erect tall copper light ning rods on high buildings or steel towers. In the early part of the nine teenth century smaller hail rods, consisting of metal-tipped poles, were set sisting of metal-tipped poles, were set up in European fields, vineyards, etc.,

on a very extensive scale.

None of these expedients has any plausible scientific backing, in the opinion of weather experts, and the merits ascribed to them have been wholly imaginary. The use of these practices has declined greatly in recent years.

cent years.

The only real protection against hall damage is hail insurance. Such insurance has been commonly employed in Europe for over a century, and in recent years it has been growing in popularity in the United States.

Fruit Survey in British Columbia

THE CANADIAN Department of Agriculture recently made a survey of the berry industry in British Columbia. This survey showed that during 1924 there was a total of 2522 growers having the following acresses. Parapherical 29265, https://doi.org/10.1001/j.j.com/parapherical-29265, https://doi.org/10.1001/j.com/parapherical-29265, https://doi.org/10 T^{HE} growers having the following acreages: Raspberries, 2386; strawberries, 2331; loganberries, 764; blackberries, 251; red currants, 59; black currants, 239; gooseberries, 96; making a total of 6126 acres. The Frazer River Valey led all other districts in acreage and production. Vancouver Island was second. The strawberry acreage has increased over 40 per cent in the last four years, although there has been a decrease in acreage during the last two years in all but the Kootenay district, which is near the prairie markets. Raspberries have shown an inkets. Raspberries have shown an increase in acreage of about 145 per cent since 1920. The popularity of black currant jam has caused an increase of 290 per cent in the acreage of black currants during the past four years. In 1924 there were 764 acres of loganberries compared with 209 acres four years ago.

He Earned His Dollar

The newlyweds on their honeymoon had the drawing room. The groom gave the negro porter a dollar not to tell anybody on the train they were bride and groom. When the happy couple went to the diner for breakfast next morning, all the passengers snickered and pointed and eyed the couple knowingly. The groom called the porter and demanded, "Did you tell anybody on the train we were just married?" "No, sir," said the dusky porter, "I told 'em you all was just good friends."—The Blotter.

One Better

Sometimes the Yankee's humor of exaggeration is met by as good as he gave. An American in London stopped at a coster's stall and lifting up a good-sized melon, said: "Are these the largest apples you have?"
"Put that bloomin' grape dahn, will yer?" said the coster.—Boston Tras-

script.

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SCIONS cut di to Prof. nell Colle Y. "Get mant. P and store they are grafting time for spray. W green. "Many

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Take Scions in Dormant Condition

SCIONS for cleft grafting should be cut during late winter, according to Prof. Joseph Oskamp of the Corto Prof. Joseph Oskamp of the Cornell College of Agriculture, Ithaca, N. Y. "Get them while they are dormant. Pack them in moist sawdust and store them in a cool cellar until they are used in the spring. The grafting should be done at about the time for applying the delayed dormant spray, when the buds are showing green.

spray, when the buds are showing green.
"Many orchards," continues Prof. Oscamp, "contain old trees of undesirable or seedling fruit. If trees are healthy and not too old, a desirable variety can be grafted onto them to good advantage if the stock of the original tree is suitable. It is not usually profitable to topwork Duchess or Alexander, as the first does not give a healthy growth to the trees worked upon it, and the second blights badly. hadly.

badly.
"Scions should be taken from vigorous twigs of the preceding season's growth. Water sprouts may be used if the wood is hard and the buds are well matured."

well matured."
Circular F123, which gives directions for topworking and bridge grafting fruit trees, as well as formulas for making hard and melted wax, may be obtained from the College of Agriculture, Ithaca, N. Y.

A New Disease of Figs

FIGS when first introduced into California promised to be free from diseases. The foliage has not become infected to date, but several diseases are now causing serious dam-

diseases are now causing serious damage to the fruit.

Recently a disease has become quite serious in Calimyrna orchards (the Calimyrna is the Lob Indjir variety of Smyrna). The disease is variously known as soft rot, pink rot, brown rot, stem end rot and eye end rot. It is first evident in the meat and pulp on the interior and may or may not show on the outside of the fruits as the disease develops.

Recent studies at the University of California by P. D. Caldis have shown that the disease is caused by a fungus carried on the bodies of an insect called Blastophaga and introduced by

carried on the bodies of an insect called Blastophaga and introduced by them into the fig cavities. The spores germinate and the fungus grows slow-ly until the fruit begins to ripen, after which it spreads rapidly and causes breakdown of the interior of

the fruit.

The insect is being further studied in the hope that control measures will be developed.

Kink for Better Plowing By Rich Lucas

By Rich Lucas

W HEN plowing under a heavy growth of green material, you can greatly improve the job if you will fasten one end of a chain to the end of the doubletree and the other end to the plow beam, leaving the chain somewhat slack so that it can catch and hold down the green material until the plow covers it up. This method is, I believe, known to practically every farmer but the following kink I have never seen used except on my farm and I am passing it on for what it is worth.

Just about where the main chain would touch the plow point, I wire on a piece of chain a couple of feet long. This short piece of chain drags along in the furrow, and being held firmly by the falling earth, it holds the main chain down to work. Without this short chain, the main chain, being loose, fails to cover many of the large weeds. I have used this extra chain for a long time and find it works no matter how heavy the growth is.

Ever Thus

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American Fruit Grower Magazine, 53 W. Jackson Blvd., Chicago.

(Feb. '26)

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bia, Mo.

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EDUCATIONAL

YOUNG WOMEN BETWEEN THE AGES YOUNG WOMEN BETWEEN and eighteen and thirty-five years contemplating training for a graduate nurse, should thoroughly investigate the facilities offered by various hos plais and achools of nursing. The Medical College of Virginia School of Nursing at Richmond, Virginia, offers a course of nursing in its hospitals equaled by few schools in the South. High school graduates finish in two years and eight months. Assurance and March classes now being organized with the school of Nursing Wirsing catalog apply to Dean School of Nursing, prial Hospital. Richmond, Virginia.

FARMS AND ORCHARDS

FOR SALE—LEBANON COUNTY FARM AND apple orchard just ripe to go. The Heistorf Orchards. 12 ml. S.-W. of Lebanon, Peana., within 2 miles of stippling point, is in every respect an lower form farm. He was a stippling point, is in every respect an lower form farm. He was that will naturally give color, size and favor to the fruit. The farm consists of 46 acres, 3700 14 year old apple trees of the best early, midoenson and late varieties, will no most profife and healthy condition, 75 acres under cultivation and ready for further planting. 25 acres of pasture with numning water. Large double house with bath, heat and laundry, large barn, implement shed, packing shed, etc. Fully equipped with large power sprayers, dusters, tractor, 2 trucks, 3 horses, farming implements, wagons, shipping cases, etc. This is a going proposition just ripe for a clean up. Attractive price with liberal terms to resionsible prospects. Real Estate Bepartment, Lebanon County Trust Company, Lebanon, Pa.

pany. Lebanon. Pa.

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opportunities in southern california are better now than ever for the man of moderate means, who desires to establish a home on a few acres that will insure him a good living in a delightful country. Lands are reasonable in price and terms attractive. Crops best suited for different locatities are well proved. Efficient marketing organizations are at your service. Southern california has a climate you will like—an enjoyable twelve months open season. There are thousands of miles of paved roads. Seaside and mountain resorts offer recreation for everybody. Let me mail you our illustrated folder containing dependable information on Southern California. C. L. Seagraves. General Colonization Agent. Santa Fe Ry., 942 Ry. Exchange, Chicago.

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FOR SALE—IMPROVED, BEARING PEACH and apple orchards in fruit belt on or near paved roads. Growers have realized \$500 to \$800 an acre yearly. Own an orchard for pleasure and profit. Reasonable prices and terms. Immediate possession. Write today. Stabl Farm Lands, Champaign, III.

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To figure the cost of your copy, count each initial, abbreviation, number or group of numbers, as one word as well as the name and address, thus: "J. B. Jones, 44 East Main St., Mt. Morris, N. Y.," counts as eleven (11) words. Write advertisement on separate sheet, Please enclose cash with order. For advertisements addressed in care of this publication, allow 5 words for address. SPECIAL NOTICE—All advertising copy, discontinuance orders or change of copy must reach this office by the 10th of this month for next issue.

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ornamental trees, vines and shrubs. Tennesses Nursery Co., Box 101. Cleveland, Tena.

ONE GOOD INVESTMENT IS WORTH A LIFE-time of hard labor. Special for early orders only—a few hundred choice peach trees, \$6.00 per hundred and up; apple trees, ten dollars, catalog free. Order today before stock is sold up. Also pear, cherry, plum shade trees and plants. Egyptian Nurseries & Orchard Co., Farina, Ill.

VIGOROUS NEW LAND STRAWBERRY PLANTS, famous varieties, guaranteed; 50 Dunlap (early), 50 Gibson (midseason), \$1.50 Gibson, 50 Burrill (new), 25 Cooper (big), 25 Eaton (late), 2 Mastoidon (new giant everbearing), \$2. Postpaid. Keith Bros. Nursery, Box B-3, Sawyer, Mich.

ALFRED BLACKBERRIES ARE THE LARGEST grown. Berries 1½ inches long. Hardy, sweet, bears heavily. Price reduced 60%. Also strawberry, raspberry, shrubs, gladiolus, seeds and trees. Free plant offer. George Stromer (Originator), New Buffalo, Mich., Box 1.

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Growers, Hawesville, Ky.

Growers, Hawesville, Ky.

KENTUCKY HOMESPUN SMOKING, SWEET
and mellow—10 pounds, \$1.75; twenty, \$3.00.

Tobacco Wholesalers, Murray, Ky.

WANTED

WANTED—TO HEAR FROM OWNER OF FARM for sale for spring delivery. O. Hawley, Baidwin, Wis.

Raspberry Growing in the Northeast

(Continued from page 8)

controlling anthracnose. Special care should be used to keep down weeds and grass in the rows as they increase the humidity around the canes. In making new plantings, remove the old canes from the young plant roots, thereby eliminating a possible source



An individual hill of red raspberries

of infection. Two sprays are recommended, if needed, as follows: (1) after a few leaves have unfolded in the spring, using lime-sulphur diluted one to 10 with water and (2) about one week before the blossoming period, the sulphur one to 40. using lime-sulphur one to 40.

Produce Apples of High Color

A PPLES that are high in color sell themselves readily. Wise apple growers will so handle their orchards growers will so handle their orchards that they will produce apples of the highest color. Prof. F. C. Sears, Head of the Department of Pomology at the Massachusetts Agricultural College, recently outlined five methods by which apples with high color can be pro-

appies with high color can be produced.

"First, keep the tree open enough to let in sufficient light. Second, space the trees widely enough in the orchard so that they may get plenty of light; or if fillers have been used, representations." move them before they crowd so much as to give poor color. Third, use fer-tilizers more carefully so as to obtain the proper degree of growth for good color without too much foliage. Fourth, adapt our varieties to our soils in oradapt our varieties to our soils in order to get the best color. One soil will give highly colored Baldwins but poorly colored fruit of some other variety. Fifth, thin the fruit. Though better color is only one beneficial effect of thinning, it is an important one.

"Color is chiefly dependent on ma-turity and sunlight. To get good color, maturity should be hastened by avoidmaturity should be hastened by avoiding the use of undue amounts of nitrogenous fertilizers, by sod culture where practicable, by stopping cultivation early, and by using large-growing cover crops. Utilizing sunlight to the best advantage involves pruning to open up the tree and thinning to expose surface to the sun." pose surface to the sun.

"Go to Father!" she said, when he asked her to wed,

For she knew that he knew that her father was dead,
And she knew that he knew of the

life Dad had led.

And she knew that he knew what she meant when she said: "Go to Father!"

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Gra Everybody she in the home may be plant near some but where. Riper and berry ver favor, and is popular grape

OUR OFFERrears new, scription to Magazine and Concords absabipment will for planting.

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Concord FREE Grapes

Everybody should have a few grape vines in the home garden. The Concord grape may be planted along the garden fence, sar some building, on a trellis or elsewhere Ripens in early August Cluster and berry very large. Has an exquisite favor, and is without question the most pepular grape in the country.

OUR OFFEE—Send us \$1.00 for a three fears new, renewal, or extension subscription to the American Fruit Grower Magazine and we will send you three Concords absolutely free. Order now—shipment will be made at proper time for planting.

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I enclose \$1.00 for which send me the
American Fruit Grover Magazine for three
years and the three Concord grape vines,
free,

Nag	ne				 	
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State..... I bave acres in fruit Some New Hybrid Strawberries By Y. P. Bhosale

A PPROXIMATELY 2000 varieties of strawberries have been originated and listed in the United States. In addition, several hundred varieties of European origin have been grown in America, though less than 50 of these have gained any prominence. These have gained any prominence. The varieties have had their origin as varieties have had their origin as hybrids from known parents, as seedlings from known mother parents, and as chance seedlings of unknown parentage. Of the 1879 varieties listed by Fletcher, 268 are the results of crossing one variety with another, 199 are said to be seedlings of certain varieties, and 1412 are seedlings of unknown parents. known parents.

Nebraska Experiments

Nebraska Experiments
Experiments were conducted at the
Nebraska College of Agriculture with
the object of determining the possis
bility of producing superior strains of
strawberries by breeding methods.
In the early winter of 1913, several
plants of various varieties were transplanted to the benches in the greenhouse, where they reached the flowering stage about midwinter. The
crosses were perfected by removing
the immature anthers from the flowers the immature anthers from the flowers

A PPROXIMATELY 2000 varieties of characteristics, but also upon chemical and storage tests of the 36 kinds that were grown in 1920.

The chemical test consisted in analyzing the fruit of the different sorts for moisture, total sugar, and acid content. This test was of no great importance as a means of determining the best hybrids, because it was found that the differences were small.

Storage Tests

The storage test was made for the purpose of determining the "keeping" and "handling" qualities of the fruit. It was believed that the storage test would be an index to shipping qualities. Representative quantities of the different hybrids were harvested and ties. Representative quantities of the different hybrids were harvested and stored in a refrigeration room that varied between 35 and 40 degrees Fahrenheit. The berries were kept in storage for eight days and then removed to a room with a temperature of 65 to 75 degrees Fahrenheit. At the end of a 24-hour period, notes were made upon condition, color, flavor, and condition of calyx. The 10 hybrids for further test are compared in these respects with Dunlap and Warfield in the following table: in these respects with Dunlap Warfield in the following table:

Condition

NOTES ON FRUIT STORED FOR EIGHT DAYS.

Hybrid or Variety.	Condition.	Color.	Flavor.	of calyx.
Dunlap	Soft	Poor	Poor	Dry.
Warfield	Firm	Good	Fair	Medium dry
Bisel x Howard 17 (1)	Firm	Good	Good	Medium dry
Enormous x Dunlap (5)	Firm	Good	Poor	Dry.
Enormous x Dunlap (12)	Medium	Good	Poor	Medium dry.
Enormous x Dunlap (16)	Medium	Good	Poor	Green.
Howard 17 x Staples (3)	Medium	Dark	Fair	Medium dry.
Howard 17 x Staples (4)	Good	Good	Good	Green.
Glennary x Stevens (1)	Medium	Good	Good	Green.
Parsons x Clyde (2)	Firm	Good	Fair	Green.
Parsons x Dunlap (3)	Good	Good	Fair	Green.
Stevens x Parsons (2)	Medium	Firm	Good	Green.

of the mother parent two or three days before the pollen of the other was ap-plied. Other crosses were made in the field during the spring of 1914. In the ase of field crosses, it was necessary o protect the flowers from foreign pollen. This was done by means of paper bags, or frames covered with fine muslin.

Certain varieties were "selfed," or ertilized with their own pollen.

Care of Seeds

Care of Seeds

When the seeds from these crosses were mature, the fruits were crushed and the seeds allowed to dry for several weeks. They were then germinated in sterile soil in the greenhouse. A low per cent of germination was secured in many instances. The hybrid seeds and resulting plants from a given cross were kept separate from all other lots. The hybrid plants from the same cross were each given a number, as, Enormous x Dunlap (1), (2), (3), etc. Seven hundred and sixty-two plants were secured. Each plant was transplanted to the field and given sufficient space to establish plant was transplanted to the field and given sufficient space to establish a colony of daughter plants by means of runners. By this means it was pos-sible to get from six to 20 plants from each hybrid on which to take preliminary comparisons the following season 1916. season, 1916.

Rigid Selection Practical

Rigid Selection Practical

During the fruiting season of 1916 it was deemed advisable to discard 654 of the 762 sorts. This elimination was made on the basis of unproductiveness, inferior fruit, deformed fruits, inability to make plants, and susceptibility to leaf spot. A sufficient number of plants from each of the 108 best hybrids and seedlings was set in the spring of 1917 to establish a 30-foot matted row for further test. From the yield taken in 1918, 72 more were eliminated and 36 of the better sorts were planted (spring of 1919) in 50-root rows. In the spring of 1922, the best 10 hybrids were planted in sufficient quantity to produce plants for a large number of co-operative tests in different parts of the state. This last selection was made not only upon the basis of past yield and plant upon the basis of past yield and plant

Hybrids Gave Good Yields

Some of the hybrids gave very satisfactory yields, compared with the variractory yields, compared with the various standard varieties. The 10 hybrids gave an average yield, over a period of four years, of 266.8 crates per acre, while the 10 highest yielding varieties gave an average of 252.6 crates per acre. The same system of culture was used in all instances. Some of the years acre. The same system of culture was used in all instances. Some of the varieties, however, were grown over a longer period than others. The average yields given for the variety trial are therefore not entirely comparable

on account of seasonal variations.

The value of a variety depends to some extent upon its ability to produce fruits of a desirable size throughout the season. In size of berry the hybrids average somewhat larger than hybrids average somewhat larger than Dunlap and Warfield, two of the standard varieties for the Middle West. Compared with the average size of Warfield and Dunlap, the hybrid berries were 27 per cent larger at the first picking, 34 per cent in midseason (June 18), and 12 per cent at the last nicking.

picking.

These 10 promising hybrids are be-These 10 promising hybrids are being tested at various points in Nebraska and other states. In the few tests already made, other than those at the Nebraska Experiment Station, the Enormous x Dunlap hybrids have been superior to Dunlap. The two hybrids, Enormous x Dunlap five and 12, have shown unusual ability to withhave shown unusual ability to with-stand transplanting. This character-istic may often be an important factor in securing a satisfactory matted row under field conditions.

HE OREGON Experiment Station

THE OREGON Experiment Station has begun a three-year study of the prune industry. Statistics will be collected of the present status of the industry and surveys will be made of the practices being used in the Willamette Valley.

The study is being made jointly by H. S. Scudder of the Department of Farm Management, and R. S. Besse, farm management specialist, in cooperation with the Department of Horticulture. An analysis will be made of all facts pertaining to production and management.

"Never change it," cautions satisfied pipe-smoker

> Further evidence that smokers want their favorite tobacco kept "as is"

Apparently, Mr. Kirkland is unfamiliar with certain rules and by-laws of the Edgeworth Club.

One by-law adopted unanimously years ago-and never amended-is as follows "The quality and flavor of Edgeworth tobacco shall never be changed.

However, we feel certain that after reading Mr. Kirkland's interesting letter the Club will elect him promptly to membership, as he requests. His letter certainly shows he has the proper redentials.

McKeesport, Penna.

Larus & Bro, Co., Richmond, Virginia,

Gentlemen:
A cheap watch will lie to us continually about the very stuff life is made of, and poor tobacco will steal what is left of it.
If requires more time to upset our ideas about things, than it does to adopt the idea in the first place. This is especially true in regard to smoking tobacco.

It is however, a reasonable argument.

It is, however, a reasonable argument that one will never get more out of a pine than is put into it. I settled that argument long ago by adopting Edgeworth, Edgeworth is exactly right, so I caution you by the great cormppe, never attempt to chance it in any sense, for I believe I would detect if. I have a certain regard for my pine, which I do not care to abuse.

for my pipe, when I do not care to coose.

The only hope one might have of finding greater enforment in the quiet smoke than is provided by your product lies in the selection of a better or perhaps a more elaborate pipe, but that is another story.

Very sincerely yours,

A. H. Kirkland,

P. S.-Will you take my name into the next Edgeworth meeting?



To those who have never tried Edgeworth we make this offer:

Let us send you free samples of Edgeworth so that you
may put it to the
pipe test. If you
like the samples,
you'll like Edgeworth wherever
and whenever

you buy it, for it never changes in

Write your Company, 13-O S. 21st Street, Richmond, Va.

We'll be grateful for the name and address of your tobacco dealer, too, if you care to add them.

Edgeworth is sold in various sizes to suit the needs and means of all purchasers. Both Edgeworth Plug Slice and Edgeworth Ready-Rubbed are in small, pocket-size packages, in handsome humidors holding a pound, and also in several handy in-between sizes.

To Retail Tobacco Merchants: If your jobber cannot supply you with Edgeworth, Larus & Brother Company will gladly send you prepaid by parcel post a one- or two-dozen carton of any size of Edgeworth Plug Slice or Edgeworth Ready-Rubbed for the same price you would pay the jobber.

On your radio—tune in on WRVA, Richmond, Va.—the Edgeworth station. Wave length 256 meters.

How Water and Nutrients Affect Fruit Setting

(Continued from page 7)

crease may mean larger yields with varieties that are inclined to lose too many fruits during the June drop or before; but it is well to keep in mind that if too many fruits set as a result that if too many fruits set as a result of early nitrate application, the fruits are apt to be smaller, and the yield would, therefore, not be improved by an increased set. Nitrogen alone is not as effective as pruning in causing a set in difficult cases such as the Anjou pear previously referred to.

Importance of Food Manufactured by Leaves

In addition to water and soil nutri-In addition to water and soil nutrients, the developing fruits also require organic materials which are produced by the leaves. Some of this is stored in the wood and bark during the year before the fruit sets, and some must be manufactured by the newly opened leaves on the flower-bearing wood. Flower-bearing spurs from which the leaves are removed will set few, if any, fruits. That the set is influenced markedly by the supwill set few, if any, fruits. That the set is influenced markedly by the supply of organic food is also shown by the results that accompany ringing. If a narrow band of bark is removed from a large limb in late summer after the flower buds have formed or in early spring of the bearing year the set of fruit will be much heavier than personal. In princed limber of limbs o the set of truit will be much heavier than normal. In ringed limbs of Rhode Island Greening having 957 flower spurs, 47 per cent set fruit, while limbs not ringed set on 33 per cent of the 909 flower spurs. Such results sometimes occur accidentally when raphits or mice grow the hard. when rabbits or mice gnaw the bark of the tree during winter. The re-moval of a ring of bark, as is well known, prevents the downward move-ment of elaborated sap and causes an accumulation above the ring. (Ring-ing which is done coulty in the spring accumulation above the ring. (Ringing which is done early in the spring may also increase the production of flowers for the following year, but that is another question.) Under normal conditions a good organic food supply depends on healthy, well nourished leaves. This involves the best orchard practices, including proper soil management and the effective control of insects and disease tive control of insects and disease pests, not only during the crop year but during the off year as well.

Spur Vigor Influences Set

The different parts of the tree on which flowers are produced are not equally well nourished, they do not have the same amount of storage and have the same amount of storage and conducting tissue, and as a result they do not have the same ability for supplying water, food and soil nutrients to the fruits. In the case of the apple, for example, one can divide the flower bearing spurs into two general groups—one consisting of the weaker, and the other of the more vigorous spurs. As compared with weak spurs, the previous season's growth of vigorthe previous season's growth of vigor-ous spurs is longer; the cluster base is heavier; the diameter of the conducting tissue is greater; the leaves are larger and more numerous; there are more flowers to the spur; and there is also more lateral growth

from the spur (Figure 2).

A few specific cases will serve to indicate the relationship between vigor of spur and the set of fruit. In a large limb of a Baldwin tree there were 320 vigorous flower-bearing spurs which made one-half inch of growth or more during the preceding year. Of these 67.2 per cent set fruit. On the other hand, only 25.5 per cent of the remaining 357 weak flowerof the other hand, only 25.5 per cent of the remaining 357 weak flower-bearing spurs which made less than one-half inch of growth set fruit. In another case, the average weight of 139 spurs that held fruit was 2.76 grams, while 112 spurs that lost all fruit weighed only 1.45 grams apiece. The number of flowers per 100 spurs that set fruit was 574, whereas the number of flowers on 100 spurs that did not set was 445. Only 20 per cent of the four flowered spurs held fruit, but 55 per cent of six flowered spurs were fruitful. In another case the average weight of the new growth on fruiting spurs was 1.35 grams as compared with an average of 0.79 grams for spurs that did not set.

Whether we measure vigor by the amount of previous season's growth, by the weight of the new growth, the length of lateral shoots from the cluster base or by the number of flowers, we always find a greater set of fruit on the more vigorous spurs. vigorous spurs seem to favor fruit setting because they can supply the developing fruits with an abundance of water and nutrients.

Seed Formation Helps Growth of Fruit

It will be of interest to point out how the set of fruit may be influenced jointly by the vigor of the tree and formation which generally involves cross pollination.

The average number of seeds in fruits that fall during the June drop or before is less than we find in fruits that fally set Francisco apples that finally set. For example, 100 apples that fell had 351 seeds, while 100 that remained on the tree had 635. This certainly indicates that, taking the trees as a whole, the fruits with many good seeds have a better chance of remaining on the tree.

chance of remaining on the tree.

But many of the apples that finally set do have few seeds. A study of the location of these few-seeded fruits indicates that they are usually found on vigorous rather than on weak spurs. Thus, in the case of the variety Tompkins King, fruits that had only two to four seeds were found on spurs weighing an average of 5.1 grams while those fruits on found on spurs weighing an average of 5.1 grams while those fruits on weak spurs which weighed but 2.4 grams had five to seven seeds each. This indicates that fruits that have many seeds can set on either weak or on vigorous spurs, but few seeded fruits will not survive unless they are on strong spurs. Seeds appear to be valuable because they supplement the forces that bring the necessary forces that bring the necessary er and nutrients to the fruit. Their activity in this respect may be compared to that of a suction pump. The pull must be greater—there must The pull must be greater—there must be more seeds—when the supply of sap is limited or difficult to obtain. Many strong seeds are of primary importance for the setting of fruit on relatively weak spurs; they are of lesser importance for the setting of fruit on strong spurs.

fruit on strong spurs.

It should be pointed out that the function of seeds in attracting nutrients is not confined to fruits on weak spurs. When a fruit on a vigorous spur has many strong seeds it will utilize the extra nutrients in making more rapid growth and developing a relatively large size.

This discussion suggests that there may be greater need for cross pollination, which is generally needed for good seed production, when the trees are growing under conditions that are growing under conditions that cause a large proportion of weak spurs. Trees under the most favorable climatic and cultural conditions for vigorous growth should have the better chance of setting with their own pollen and with fewer seeds. That this may actually be the case is indicated by the following results. The fruits of Tompkins King trees which grew in an unfertilized sod orchard contained an average of 6.1 seeds, while those from a nearby cultivated orchard had only 3.8 seeds per fruit. It is generally true that trees in unfertilized sod orchard yield less than those which have the benefits of cultivation. Studies indicate that a cultivation. Studies indicate that a part of this reduction in yield is due part of this reduction in yield is due to the loss of many flowers and fruits that have too few seeds to set under the handicaps of unfavorable condi-tions of nutrition that result from weak growth.

Some Suggestions

In conclusion it should be re-emphain conclusion it should be re-empha-sized that pollination is an essential step in the set of fruit and that in some cases it may be necessary to provide for the additional stimulus of cross pollination by mixed planting. But it must be remembered that cross pollination is frequently impossible because of unfavorable weather which interferes with the work of bees and other pollen-carrying insects. Since

An Anthracnose Resistant Black Raspberry Variety of Promise

By A. S. Colby

FRUIT growers are constantly on the lookout for promising new varieties resistant to the attacks of insects and diseases. It is highly desirable that any such variety, found as a chance seedling or developed through the exact method of plant breeding, be retained and tested out under different environmental conditions. If it ferent environmental conditions. If it proves to be a vigorous and produc-tive variety, bearing fruit of good size and quality and hardy under ad-verse weather conditions, it should be more generally planted.

Anthracnose is one of the most com-on diseases of black raspberries. By following a well arranged spray program and sanitary cultural meth-ods, the careful raspberry grower can

retain bearing canes for annual bearing of commercial crops.

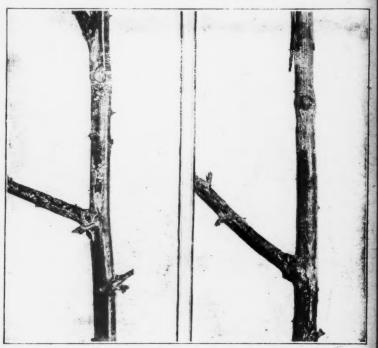
If a variety can be secured which is resistant, though not entirely immune, to anthracnose, the necessity for spraying for the control of this disease can be done away with.

Investigations at the Illinois station have shown that the Ouillon varieties.

have shown that the Quillen variety of black raspberry, originating in Indi-ana a few years ago, is quite resistant

to anthracnose.

Counts made on October 28, 1925, on nursery stock being grown in the vicinity of Bridgeport, Ind., involving several hundred canes, showed 125 per cent canes infected and 87.5 per per cent canes infected and 87.5 per cent canes clean and free from infec-tion. In a plantation of the Cumber



Left.—Cane and laterals of Cumberland black raspberry badly infected with anthrae nose. Right.—Cane and laterals of Quillen black raspberry practically free from anthrace

control the disease to a marked ex-tent. However, returns have often been unprofitable even though the disease has been controlled.

The Cumberland blackcap, mon commercial variety, is extremely susceptible to anthracuose. Growers have been obliged to spray even at some extra expense if they wished to

land variety close by, the count was 94.8 per cent canes infected and 5.2 per cent canes clean.

The Quillen variety, said to be a cross between Cumberland and Hopkins, is a promising commercial berry, hardy and vigorous in cane and producing good crops of fruit of good analty. quality.

we cannot depend too much upon this means of insuring a good crop, it therefore seems wise to so handle the orchard that the trees are in the best orchard that the trees are in the best condition to set fruit even though the weather is not ideal for satisfactory cross pollination. It is well to keep in mind that all factors that have a direct or an indirect influence on the supply of water and other growth-producing substances for flowers and fruits, such as weather, soil treat-ment, spraying, pruning, pollination, seed formation and the like, are im-portant in determining the final set.

Origin of Senator Dunlap Strawberry

PROF. J. C. BLAIR, in giving an account of the life of Rev. J. E. Reasoner at the convention of the Illinois State Horticultural Society, gave some interesting facts about the Sen-ator Dunlap strawberry, which was or-

iginated by Rev. Reasoner.

The Dunlap was developed from a group of seedlings grown by Rev. Reasoner from 1896 to 1900. A total of 121 seedlings were grown. They

were the result of crosses. By a rare stroke of chance, the Dunlap was number one in the row. Apparently it was the result of a cross between Creswas the result of a cross between Crescent and Cumberland. At first it was thought that the fruit of the Dunlap was too soft, and it was not regarded as having extraordinary merit. Later, however, it was found to be practically free from rust. The variety steadily grew in popularity, and it has become the most widely used variety of strawberries in the United States. Rev. Reasoner also developed the Dr. Burrill strawberry, which is a valety of caprideable years!

riety of considerable merit.

Needy

The editor of a country paper received a paragraph to the effect that a bride in his balliwick kneaded bread with her gloves on.

He ran the paragraph in his paper, adding as an appendix: "The editor of this paper needs bread with his shoes on, he also needs it with his clothes on, but if some of the delinquent subscribers don't pay up pretty soon, he will need bread without a darn thing on."

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XUM

Buick shares its price with many motor cars -but its Value with none

Because of the great number of Buicks bought each year, and because every dollar of the savings of great volume goes back into Buick value, Buick's moderate price buys quality.

Buick can, and does build its cars the way all motor car engineers would like to build theirs, if their volume or selling price permitted.

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ments in any way comparable in cost and quality to Buick's Torque Tube Drive; "Triple Sealed", Valve-in-Head Engine; Full Pressure Engine Lubrication; "Sealed Chassis"; Controllable Beam Headlights and Mechanical 4-Wheel Brakes.

Buick is selling more cars today than ever before in Buick history.* The public wants finer transportation at lower cost. And in Buick they get it.

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